Promoting Academic Competence and Behavioral Health in Public Schools: A Strategy of Systemic Concatenation of Empirically Based Intervention Principles

Article *in* School psychology review · December 2011

CITATIONS
26

READS
447

1 author:

Thomas J Dishion
Arizona State University
473 PUBLICATIONS **29,614** CITATIONS

SEE PROFILE

School Psychology Review,
2011, Volume 40, No. 4, pp. 590–597

Promoting Academic Competence and Behavioral Health in Public Schools: A Strategy of Systemic Concatenation of Empirically Based Intervention Principles

Thomas Dishion
Arizona State University and University of Oregon

This special issue, *Developing Social-Emotional and Behavioral Interventions with School Communities: Systematic and Collaborative Processes,* reflects the current state of the science for improving schools to better educate children and adolescents and promote their behavioral health. The innovations described in this volume describe advancements in intervention programs and in implementation and school change at a broader level. After briefly commenting about the contributions to this special issue, I go on to suggest ways to expand the focus of our science to innovate more effective school *systems*. In doing so, I touch on lessons learned by our research group as we collaborated with public school systems during the past 20 years.

The programs explored in this issue include The Incredible Years Teacher Classroom Management Training component (Webster-Stratton, Reinke, Herman, & Newcomer, 2011), the Cognitive Behavioral Intervention for Trauma in Schools (Nadeem, Jaycox, Kataoka, Langley, & Stein, 2011), School-Based Health Centers (Lyon, Charlesworth-Attie, Vander Stoep, & McCauley, 2011) and Positive Behavioral Interventions and Support (PBIS; Bradshaw & Pas, 2011). These intervention programs suggest significant benefits for students by improving training and feedback with respect to teachers' behavior management skills, identifying and addressing trauma in students who reside in violent neighborhoods and communities, addressing internalizing problems in children by the use of modular school-based clinics, and improving students' behavioral health through a system of positive behavior support. Each program has been tested in a randomized trial and has shown benefits intended by the program developers, and to this extent, each meets the criteria of empirically based intervention programs.

Program development and testing, however, is only the first step in the innovation process of public education. An exclusive focus on this first step may be short sighted in that schools are left with a list of promising programs but not a map of how to integrate these approaches with a realistic and effective overall strategy. In fact, prevention science could inadvertently have harmful effects if it does not collectively move toward integrating the core principles of empirically based programs and interventions. It became clear to our research group that many schools are burdened with implementing too many programs, are overwhelmed by the independent training mandates, and are hampered by a lack of integration among individual programs.

I am reminded of two experiences that illustrate the limitations of using packaged programs in the public school environment. In one study, my colleague and I collaborated

Correspondence regarding this article should be addressed to Thomas Dishion, 5208 University of Oregon, Eugene, OR 97403; e-mail: dishion@asu.edu

with eight public middle schools to evaluate the effectiveness of the Family Check-Up (FCU) model for improving student behavior (Stormshak, Dishion, Light, & Yasui, 2005). Each of four randomly selected intervention schools had implemented a minimum of six programs that addressed some aspect of student behavioral health. Each school had been budgeted to select the packaged programs of their choice, yet they had no guidelines on how to fit the programs together in a realistic, overall strategy. Implementation of these programs was so taxing to the school staff that the school district had created prevention coordinator positions to manage the programs in each school setting. The prevention coordinators themselves then required supervision and coordination, and would sometimes undermine the skilled leadership of principals and other school staff. In this sense, the mandate to implement empirically based intervention programs in the public schools can lead to unsustainable solutions that are disruptive to the development of an overall, effective school system. We were left wondering whether the school would have been better off left alone. Despite our goal to integrate our family-centered intervention into the entire school system, we were unsuccessful in three out of the four randomized schools because school staff were simply too preoccupied with implementing and coordinating other prevention programs than our own.

The second experience that underscored the shortcomings of a program-based innovation strategy was a meeting with a major metropolitan school district. We organized an initial exploratory meeting with all the major district stakeholders about current practices that involved parents in schools. It was held in a central district office dedicated to discussions about program selection and training. The backdrop to our meeting consisted of rows of bookshelves filled with packaged programs that the school had implemented in the past and had for the most part abandoned. We called it the *program graveyard*. It was ironic and sobering to hold meetings there while we advocated for the school to adopt our family-centered intervention program. As we drove home from the district meeting, we discussed the fact that program implementation is fueled by the zeal and the funding of program developers, but often dies as a result of budget shortfalls and changing school leadership.

Particularly important about this special issue are the articles about implementation on a larger scale (Bradshaw & Pas, 2011) and about the process of school innovation (Cappella, Jackson, Bilal, Hamre, & Soulé, 2011; (Shernoff, Lora, Frazier, Jakobsons, & Atkins, 2011). Successful implementation and innovation require attention to a host of factors rarely articulated or understood by program developers (Domitrovich et al., 2008). Bradshaw's work in this volume reveals that school-level factors were key to understanding implementation quality among the 316 elementary schools receiving PBIS training. These data suggest that training, staff support, and school leadership were at the core of the school-level effects. The contributions of Cappella et al. (2011) and Shernoff et al. (2011) are especially relevant in that both point the way to sustainable school innovation and discuss two key facets of a bottom-up approach: (1) building on the expertise of staff to cultivate ownership of change and innovation (Cappella et al., 2011), and (2) attending to the support process among all school staff to motivate sustained efforts toward systemic change (Shernoff et al., 2011). These two principles alone, in combination with data-based decision making, might confer more benefits to students than the implementation of 10 empirically based programs.

These school-level effects can be described as facets of an overall organizational system, the success of which depends on how well the individuals interrelate the effectiveness of the leadership and the mission of the school as a whole. At this stage of the science of school change, it is advisable for program developers such as myself to step back and for a new group of scientists with skills in system dynamics to take the reins (Hirsch, Levine, & Miller, 2007; Homer & Hirsch, 2006). Findings from randomized trials of effective intervention programs must be synthesized and

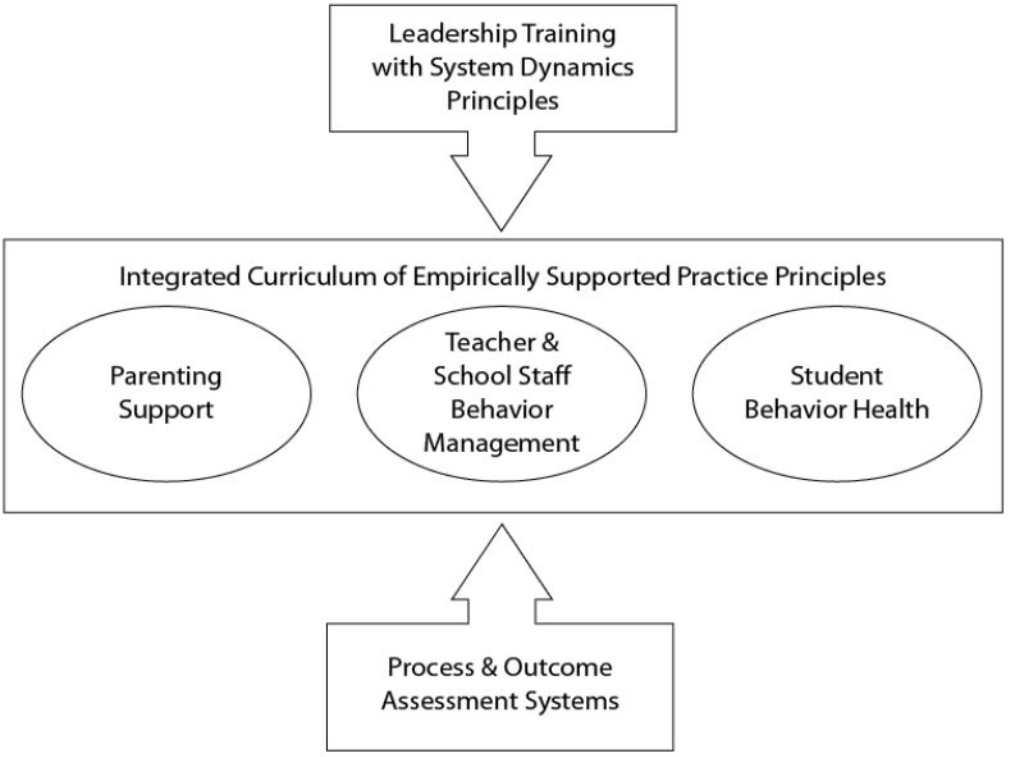

Figure 1. A model for systemic concatenation of empirically based principles.

integrated in a process I call *systemic concatenation* of empirically based principles.

Systemic Concatenation

Efforts to increase the effect of schools on children's education and behavioral health by piling up empirically supported programs are unlikely to be sustainable or successful. One version, although less than optimal, is the creation of multicomponent programs. These comprehensive programs add together empirically based interventions that use a developmental theory. Arguably the most important randomized prevention trial in the past two decades was the Fast Track trial. This research trial brought together top prevention scientists to create and test a comprehensive, multicomponent intervention in the context of public schools and revealed the challenges of such an approach. Although positive effects were found (e.g., Conduct Problems Prevention Research Group, 2002), they were comparable in magnitude to school intervention strategies that were universal and far less intensive, such as the Good Behavior Game (Kellam, Reid, & Balster, 2008) and the Coping Power program (Lochman, 1992). Although multicomponent programs have enormous value in prevention science, they are unlikely to solve the educational and behavioral health needs of students from a public health perspective.

I argue that the next stage of prevention science is to concatenate empirically based principles into systemic changes in the school operating system. A successful intervention trial of programs often suggests developmental dynamics and ecological domains that need attention in a school system (see Figure 1). Reviews of many intervention trials suggest core behavior change processes within empirically based interventions and strategies (i.e., "kernels"; Embry & Biglan, 2008). The next step in the innovation process is to efficiently concatenate these kernels in the context of the

school operating system. At this stage of innovation and change, prevention scientists must give up ownership (i.e., remove copyrights) and support efforts to streamline the intervention so as to target the specific, active kernel of the program. Future innovation and research should also focus on the development and study of school systems with respect to specific student outcomes, including both educational and social and emotional variables. Effective school systems can be recreated and tailored by training administrative leaders and teachers in applying core behavior change processes within the overall school system. Figure 1 provides an overview of the systemic concatenation process. Note that the process itself requires two major control parameters: (1) a bottom-up approach to defining leadership and to training in leadership across multiple school personnel, and (2) a data system that monitors and tracks student outcomes throughout the academic year to guide decision making and problem solving. For example, the implementation of PBIS is linked to the School-Wide Information System, which potentially provides weekly information about attendance, behavior of students in school, and completion of academic learning tasks.

Relevant to the articles in this special issue and the literature in general, three domains require priority to render schools more effective and humane (see Figure 1): parenting support, teacher and school staff training in behavior management, and student behavioral health. Listed in the following are the rationales for prioritizing these domains in school system innovation.

1. *Parenting support:* Several randomized trials of interventions that targeted parenting specifically in the context of the public school environment have shown meaningful long-term effects on depression (Connell & Dishion, 2006), academic outcomes (Stormshak, Connell, & Dishion, 2009), antisocial behavior (Stormshak, Fosco, & Dishion, 2010; Van Ryzin & Dishion, submitted), and early-onset substance use (Dishion, Kavanagh, Schneiger, Nelson, & Kaufman, 2002; Spoth, Kavanagh, & Dishion, 2002).

2. *Teacher and staff training in behavior management:* The exemplary work of Webster-Stratton and colleagues (2011) and evidence for the Good Behavior Game (Kellam et al., 2008) suggest teacher training in behavior management is core to systemic innovation in the public school environment. However, less attention has been paid to other staff training. For example, the Linking the Interest of Families and Teachers (Eddy, Reid, Stoolmiller & Fetrow, 2003) program evaluation suggested that the Good Behavior Game, when applied to the playground setting in elementary school, was key to reducing physical aggression on the playground, which in turn translated into long-term benefits to the student (Eddy et al., 2003). The First Steps program is yet another example of the importance of supporting effective behavior management among teachers to address the needs of the highest risk students (Walker et al., 1997).

3. *Student behavioral health:* Signs and symptoms of chronic difficulties regarding problem behavior and/or emotional adjustment commonly occur in the school environment. Systematic screening and proactive support given to students have benefited traumatized youth (Nadeem et al., 2011) and students struggling with depression and anxiety (Lyon et al., 2011; Seely, Rohde, & Jones, 2010). School-based interventions that strengthen anger management skills in aggressive children are effective for reducing problem behavior (Lochman, 2010).

It is unsustainable for public schools to implement a number of empirically supported programs separately in order to address the domains just listed. The following is an example of how empirically based principles derived from interventions that address parent, student, and teacher domains can be concatenated with a school operating system while using the PBIS framework.

PBIS: An Example

PBIS, an example of systemic innovation, involves an efficient and comprehensive approach to behavior management in a school system (Crone & Horner, 2003; Lewis & Sugai, 1999). The program developers focused

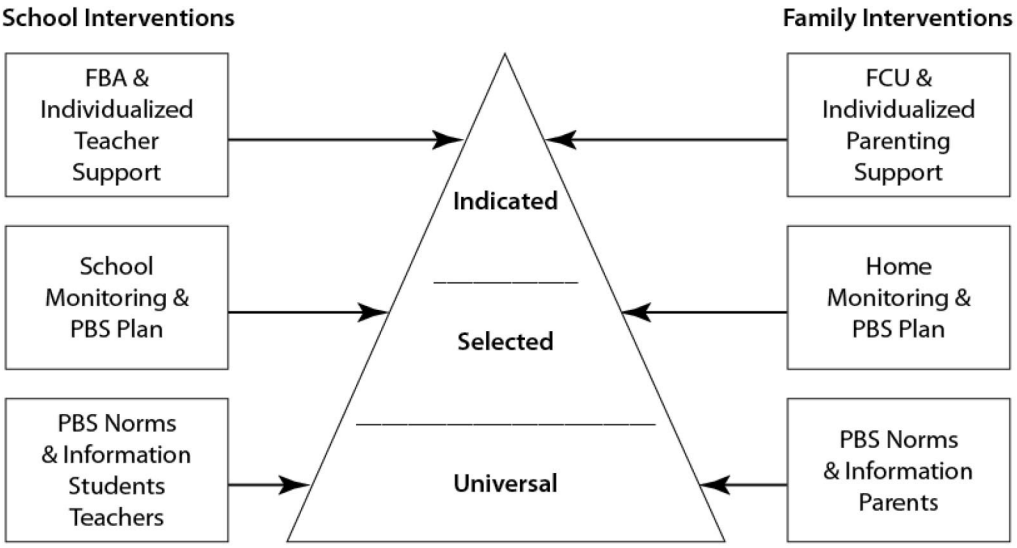

Figure 2. Concatenation of school and family positive behavior support interventions. FBA = functional behavior assessment; PBS = positive behavior support; FCU: family check-up.

on the use of positive reinforcement and other behavior management strategies (specific prompting, clear expectations, behavior monitoring, functional assessment, etc.) to create a school system that effectively promotes students' educational and behavioral health needs (Sugai, Horner, & Sprague, 1999). The PBIS program is delivered in three levels (see Figure 2) to provide universal support and behavior support for students who are identified as at risk (i.e., selected) and those who have demonstrated needs for intervention (i.e., indicated).

A systemic approach to supporting students with social and emotional needs must emphasize the integration of empirically based parenting interventions into the school system (Spoth et al., 2002). Empirically supported interventions that target parents (e.g., Forgatch & Patterson, 2010; Henggeler & Lee, 2003) are designed for the clinic and community health service environment, however, and in general they are prohibitively expensive and unrealistic to implement broadly in the school context. If approximately 25% of the school population of students would benefit from family support (Dishion & Patterson, 1993), it is unrealistic to deliver parenting programs to all, even in the format for parenting groups. The FCU was designed to address student problem behavior from this public health perspective by providing brief, motivational, periodic family support in the context of the public school system (Dishion & Kavanagh, 2003; Dishion & Stormshak, 2007). Randomized trials of the FCU model in public middle schools reveal effects on a variety of student outcomes through high school, including drug use, antisocial behavior, arrests, grades, attendance, and depression (Dishion, Stormshak, & Siler, 2010).

Scientists at the Oregon Research Institute recently embarked on an implementation study in 44 middle schools in Oregon. The general idea was to embed the FCU into the PBIS framework (see Figure 2). Concatenation required extensive revision and simplification of the FCU intervention model so that it would dovetail into the school system and fit with the professional skill set of school staff (Fosco et al., in preparation). As illustrated by Figure 2, parenting support follows the same

PBIS principles, with universal support given to parents in the form of a family resource room in the school and proactive communication about attendance, behavior, and completion of school tasks provided at regular intervals. Selected interventions include involving parents in the existing Check-In, Check-Out approach to behavior monitoring of students at risk. At the indicated level, support is provided in the form of a Web-based FCU that can be implemented by a wide variety of school staff, but especially by those typically charged with parent contact when a student's academic or behavioral health problems become evident in the school environment.

A particular challenge arose in this implementation study in that public middle schools were suffering severe budget shortfalls and some were particularly hard hit by personnel shortages. It was important for us to design a system in which response cost to school administrators and teachers was low, and one that actually improved the efficiency and reduced professionals' time and stress associated with engaging parents of high-risk students. Although program developers were involved in the process (Dishion & Stormshak, 2007), it was necessary to let go of many features of the FCU model (e.g., videotaped feedback to parents) to render it sustainable, doable given the training of school personnel, and efficient to the school systems involved in the study. More revisions will likely be needed in the future as we examine under what conditions adding Positive Family Support to the PBIS system improved academic and behavior outcomes for students.

Concluding Comments

It seems likely that the next generation of innovation in the public school environment will demand a skill set that includes formal assessment and analysis of systems dynamics (Hirsch et al., 2007; Homer & Hirsch, 2006). The iterative cycle of research should include an analysis of the behavioral economics of systems and should strive to achieve the greatest benefits to students for the least effort by school staff. As suggested by the work of Cappella et al. (2011) and Shernoff et al. (2011), sustainable school innovation is most likely achieved by using a bottom-up approach rather than a top-down program approach. The dialogue between prevention scientists and individual schools must define how to best apply empirically based principles (e.g., mobilizing parental monitoring and support, using effective teacher behavior management, setting clear and realistic student expectations) while designing an operating system that motivates staff and is effective for students. School-based information systems must retain the traditional indices, such as attendance, behavior, and completion of academic tasks, but also consider student and teacher well-being and parent engagement. Measurement empowers schools to make data-based decisions and to become their own architects of an effective and humane school.

References

Bradshaw, C., & Pas, E. (2011). A statewide scale up of Positive Behavioral Interventions and Supports: A description of the development of systems of support and analysis of adoption and implementation. *School Psychology Review, 40,* 530–548.

Cappella, E., Jackson, D. R., Bilal, C., Hamre, B. K., & Soulé, C. (2011). Bridging mental health and education in urban elementary schools: Participatory research to inform intervention development. *School Psychology Review, 40,* 486–508.

Conduct Problems Prevention Research Group. (2002). Evaluation of the first 3 years of the Fast Track Prevention Trial with children at high risk for adolescent conduct problems. *Journal of Abnormal Child Psychology, 30,* 19–35.

Connell, A. M., & Dishion, T. (2006). The contribution of peers to monthly variation in adolescent depressed mood: A short-term longitudinal study with time-varying predictors. *Development & Psychopathology, 18,* 139–154.

Crone, D. A., & Horner, R. H. (2003). *Building positive behavior support systems in schools: Functional behavioral assessment.* New York: Guilford Press.

Dishion, T. J., & Kavanagh, K. (2003). *Intervening with adolescent problem behavior: A family-centered approach.* New York: Guilford Press.

Dishion, T. J., Kavanagh, K., Schneiger, A., Nelson, S., & Kaufman, N. (2002). Preventing early adolescent substance use: A family-centered strategy for public middle school. *Universal Family-Centered Prevention Strategies: Current Findings and Critical Issues for Public Health Impact.* Spec. issue of *Prevention Science, 3,* 191–201.

Dishion, T. J., & Stormshak, E. A. (2007). *Intervening in children's lives: An ecological, family-centered ap-*

proach to mental health care. Washington, DC: American Psychological Association.

Domitrovich, C. E., Bradshaw, C. P., Poduska, J. M., Hoagwood, K., Buckley, J. A., Olin, S., et al. (2008). Maximizing the implementation quality of evidence-based preventive interventions in schools: A conceptual framework. *Advances in School Mental Health Promotion, 1,* 6–28.

Eddy, J. M., Reid, J. B., Stoolmiller, M., & Fetrow, R. A. (2003). Outcomes during middle school for an elementary school-based preventive intervention for conduct problems: Follow-up results from a randomized trial. *Behavior Therapy, 34,* 535–552.

Embry, D. D., & Biglan, A. (2008). Evidence-based kernels: Fundamental units of behavioral influence. *Clinical Child and Family Psychology Review, 11,* 75–113.

Forgatch, M. S., & Patterson, G. R. (2010). Parent management training—Oregon model: An intervention for antisocial behavior in children and adolescents. In J. R. Weisz & A. E. Kazdin (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 159–178). New York: Guilford Press.

Henggeler, S. W., & Lee, T. (2003). Multisystemic treatment of serious clinical problems. In A. E. Kazdin & J. R. Weisz (Eds.), *Evidence-based psychotherapies for children and adolescents* (pp. 301–322). New York: Guilford Press.

Hirsch, G. B., Levine, R., & Miller, R. L. (2007). Using system dynamics modeling to understand the impact of social change initiatives. *American Journal of Community Psychology, 39,* 239–253.

Homer, J. B., & Hirsch, G. B. (2006). System dynamics modeling for public health: Background and opportunities. *American Journal of Public Health, 96,* 452–458.

Kellam, S. G., Reid, J., & Balster, R. L. (2008). Effects of a universal classroom behavior management program in first and second grades on young adult behavioral, psychiatric, and social outcomes. *Drug & Alcohol Dependence, 95,* 5–28.

Lewis, T. J., & Sugai, G. (1999). Effective behavior support: A systems approach to proactive schoolwide management. *Focus on Exceptional Children, 31,* 1–24.

Lochman, J. E. (1992). Cognitive-behavioral intervention with aggressive boys: Three-year follow-up and preventive effects. *Journal of Consulting and Clinical Psychology, 60,* 426–432.

Lochman, J. E. (2010). Social cognition and self-regulation: Change in outcome expectations and aggressive behaviour over time. In W. Koops, D. Brugman, T. J. Ferguson, & A. F. Sanders (Eds.), *The development and structure of conscience* (pp. 311–326). New York: Psychology Press.

Lyon, A. R., Charlesworth-Attie, S., Vander Stoep, A., & McCauley, E. (2011). Modular psychotherapy for youth with internalizing problems: Implementation with therapists in school-based health centers. *School Psychology Review, 40,* 569–581.

Nadeem, E., Jaycox, L. H., Kataoka, S. H., Langley, A. K., & Stein, B. D. (2011). Going to scale: Experiences implementing a school-based trauma intervention. *School Psychology Review, 40,* 549–568.

Shernoff, E. S., Maríñez-Lora, A., Frazier, S. L., Jakobsons, L., Atkins, M. S., & Bonner, D. (2011). Teachers supporting teachers in urban schools: What iterative research designs can teach us. *School Psychology Review, 40,* 465–485.

Spoth, R. L., Kavanagh, K., & Dishion, T. J. (2002). Family-centered preventive intervention science: Toward benefits to larger populations of children, youth, and families. [Special Issue]. *Prevention Science, 3,* 145–152.

Stormshak, E. A., Connell, A. M., & Dishion, T. J. (2009). An adaptive approach to family-centered intervention in schools: Linking intervention engagement to academic outcomes in middle and high school. *Prevention Science, 10,* 221–235.

Stormshak, E. A., Dishion, T. J., Light, J., & Yasui, M. (2005). Implementing family-centered interventions within the public middle school: Linking service delivery to change in problem behavior. *Journal of Abnormal Child Psychology, 33,* 723–733.

Stormshak, E. A., Fosco, G. M., & Dishion, T. J. (2010). Implementing interventions with families in schools to increase youth school engagement: The Family Check-Up model. *School Mental Health, 2,* 82–92.

Sugai, G., Horner, R. H., & Sprague, J. R. (1999). Functional assessment-based behavior support planning: Research to practice to research. *Behavior Disorders, 24,* 253–257.

Van Ryzin, M. J., & Dishion, T. J. (submitted). The impact of a family-centered intervention on the ecology of adolescent antisocial behavior: Modeling developmental sequelae and trajectories during adolescence. *Development & Psychopathology.*

Walker, H. M., Kavanagh, K., Stiller, B., Golly, A., Severson, H. H., & Feil, E. G. (1997). First step to success: An early intervention approach for preventing school antisocial behavior. *Journal of Emotional and Behavioral Disorders, 6,* 66–80.

Webster-Stratton, C., Reinke, W., Herman, K., & Newcomer, L. (2011). The Incredible Years teacher classroom management training: The methods and principles that support fidelity of training delivery. *School Psychology Review, 40,* 509–529.

Date Received: September 14, 2011
Date Accepted: October 4, 2011
Action Editors: Elise Cappella, Wendy M. Reinke, and Kimberly E. Hoagwood ■

Thomas Dishion, PhD, conducts research in developmental psychopathology and intervention science. He is a professor in Child Clinical Psychology at Arizona State University, and a research scientist and founder of the Child and Family Center at the University of Oregon. He is interested in understanding how children's relationships with parents and peers influence the development of problem behavior in children and adolescents. His recent research interests the application of social neuroscience methods to understanding the interpersonal and interpersonal mechanisms underlying self-regulations. His work focuses on applying models of developmental processes to the design of preventive and clinical interventions that reduce conflict and distress in families and improve child and adolescent social and emotional adjustment. He and colleagues are developing and testing the Family Check-Up model of behavioral health in six randomized trials, including grants from the National Institute on Drug Abuse, the National Institute on Alcohol Abuse and Alcoholism, the Centers for Disease Control and Prevention, and the Institue of Education Sciences. He has published over 150 scientific reports, a book for parents on family management, and three books for professionals working with troubled children and their families.