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## Enhancing Schools' Capacity to Support Children in Poverty: An Ecological Model of School-Based Mental Health Services

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### Abstract

School based mental health services for children in poverty can capitalize on schools' inherent capacity to support development and bridge home and neighborhood ecologies. We propose an ecological model informed by public health and organizational theories to refocus school based services in poor communities on the core function of schools to promote learning. We describe how coalescing mental health resources around school goals includes a focus on universal programming, mobilizing indigenous school and community resources, and supporting core teaching technologies. We suggest an iterative research–practice approach to program adaptation and implementation as a means toward advancing science and developing healthy children.

### Keywords

School based mental health; Childhood poverty; Ecological models; Indigenous resources; Organizational theory

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School-based mental health services for children living in poverty are in need of reform. Schools have been identified as a place to reach children and families, particularly in poor communities, a setting with inherent capacity to support children's mental health and development, and a nexus between home and neighborhood with potential to bridge these ecologies. School-based prevention and intervention initiatives, mental health centers, and full-service schools are increasingly common methods for integrating mental health and education. However, the potential for a partnership between education and mental health is unfolding slowly in the absence of clear and unifying frameworks to guide research and practice in this emerging field (see Adelman and Taylor 2006; Evans and Weist 2004; Hoagwood and Erwin 1997). Research on implementation, sustainability, and integration of

services indicates that prevention and intervention programs are difficult to implement and sustain, particularly in high poverty communities, and in many schools, mental health programs remain marginalized from school routines and structures (e.g., Weist and Paternite 2006; Wilson et al. 2003). A common frame for organizing mental health in schools is particularly important in poor communities where the need for comprehensive and effective mental health and academic support is high (see Brooks-Gunn and Duncan 1997; Cooper 2007).

In this paper, we propose an ecological model informed by public health and organizational theories to refocus school-based mental health services in high poverty communities on the core function of schools to promote learning. We discuss the influence of poverty on child development through the multiple contexts in which children live, and the limitations of current models of prevention and intervention in schools. We apply an alternative model that aligns the mental health workforce with school goals by activating teachers and parents to serve as catalysts for change. We use examples from the literature to describe how coalescing mental health resources around the goal of learning can promote positive mental health outcomes through a focus on enhancing universal school programs, supporting indigenous school and community resources, and building core classroom teaching technologies. Finally, we suggest an iterative research–practice approach to adapting and disseminating school-based mental health initiatives to high poverty communities to produce relevant, precise, and efficient research toward the development of models that advance science and develop healthy children.<sup>1</sup>

## The Experience of Poverty

In 2005, 18% of children (13 million) lived in poverty, with more than 7% (6 million) living in extreme poverty, and the percentages higher for the most vulnerable children under the age of six (Federal Interagency Forum on Child and Family Statistics 2007, <http://www.childstats.gov/>). Children in poverty are more likely to live in single-parent, female-headed households (43%) than two-parent families (9%), and are more likely to be African American (35%) and Latino (28%) than Caucasian (10%) (Federal Interagency Forum on Child and Family Statistics 2007, <http://www.childstats.gov/>). Parent education, employment, and occupational status are highly correlated with income and often remain stable across time, such that many children remain in poor families and communities for years (Bradley and Corwyn 2002; Duncan et al. 1998). The gap between rich and poor continues to grow, leading to the experience of greater 'relative deprivation' among poor children in the United States (UNICEF 2007). Reports on national strategies to reduce poverty (e.g., Center for American Progress 2007; Haskins and Sawhill 2007) have not been matched by political or economic will, thus the experience of poverty will continue to remain a reality for many children.

Poverty has a profound and predictable association with children's cognitive abilities, physical health, and social-emotional development (for reviews see Bradley and Corwyn 2002; Brooks-Gunn and Duncan 1997; McLoyd 1998). Outcomes related to living in poverty have been found in prospective longitudinal studies, income change models, sibling difference studies, and national health data (see Duncan et al. 1998). Living in poverty predicts deficits in children's cognitive and academic abilities, including poor verbal skills, low IQ, grade repetition, and early school dropout (Brooks-Gunn and Duncan 1997). Physical health problems such as growth retardation, high blood lead levels, and obesity are more common among poor than non-poor children (see Bradley and Corwyn 2002; Evans

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<sup>1</sup>The term "school-based" will be used to be inclusive of all mental health activities that occur in a school building, regardless of funding source, level of intervention, or provider of prevention or service.

and Kantrowitz 2002; National Center of Health Statistics 2006). Youth from impoverished families have more social-emotional difficulties and engage in more behavioral risks than youth from middle-income families (e.g., Korenman et al. 1995; Wadsworth and Achenbach 2005; Duncan et al. 1998). It is clear that poverty is widespread among U.S. children and influences development in acute and extensive ways.

## **Contextual Pathways of Poverty: The Potential of Schooling**

Although the models and mechanisms by which poverty is associated with children's development are not fully understood, researchers are examining mediators, moderators and correlates across multiple contexts, with cumulative risk exposure recognized as a significant contributor (see Evans 2004). Data from national longitudinal studies demonstrate that household resources and parenting practices together account for a considerable portion of the influence of poverty on children's cognitive and academic development, and that learning experiences in the home explain up to 50% of the variance in children's cognitive abilities (e.g., Brooks-Gunn et al. 1993). A recent review of national surveys and longitudinal health studies concludes that exposure to environmental toxins, more prevalent in homes and communities of poor and minority children, results in cumulative cognitive deficits that can lead to the intensification of multiple negative outcomes over time (Dilworth-Bart and Moore 2006). Community disorganization (i.e., underemployment, crime, substance abuse, physical decay), found more often in poor than affluent communities, has been linked to multiple negative outcomes in children, including involvement in aggression, internalizing symptoms, poor academic performance, and emergency room visits (e.g., Evans and Kantrowitz 2002; Schwartz and Gorman 2003; Brooks-Gunn et al. 1993).

By virtue of their unique position at the nexus of home and community, and a place where children spend significant time, schools have the potential to promote positive outcomes even in the face of risk (Allen-Meares 2006; Boyd and Shouse 1997). However, there is evidence that public schools in economically disadvantaged communities struggle to realize this potential. Related to how public schools are funded, school facilities and materials in poor communities are often inadequate, with deficiencies in space (e.g., overcrowding), environmental quality (e.g., acoustics, electricity, heating), and educational materials (e.g., books, supplies) (see Evans 2004). Given the emphasis on reading and math scores in the current political climate, the school day holds limited opportunities for enriching activities or productive socialization (Roth et al. 2003). For a variety of reasons, such as lack of education and empowerment (Chavkin and Williams 1989; McKay et al. 2003), families of poor and minority students are less likely to participate in school activities, one important means toward school engagement and learning (see Barnard 2004; Jaynes 2005). Low-income students tend to have less-qualified teachers who hold lower expectations for student learning (Ingersoll 1999; Weinstein 2002), and thus may produce or exacerbate actual differences in achievement and behavior (Alexander et al. 1987; Rist 1970). Finally, poor students are unlikely to experience consistent high-quality instruction across their elementary years (Pianta et al. 2007), and are likely to attend schools with high teacher and student turnover (Ingersoll 2001), contributing to the experience of educational instability and discontinuity over time.

## **School Mental Health in Poor Communities**

Given the multiple challenges facing schools in poor communities, mental health resources are urgently needed to support the potential of schools to promote children's positive development. Schools, in fact, have been for a long time the de facto providers of social services for a majority of youth across income levels (Burns et al. 1995; Farmer et al. 2003),

providing an estimated 70–80% of psychosocial services to those children receiving support (Rones and Hoagwood 2000). Educators have noted that the unmet psychosocial needs of children and families overwhelm the resources of schools and undermine their capacity to educate children, particularly in low-income communities where the breadth and depth of need is high (e.g., Carnegie Council on Adolescent Development 1989). With the passage in 1975 of PL 94-142, the first federal law mandating equal access to public education for children with disabilities, a range of expanded agendas—such as full-service schools and school-based mental health programs—emerged with the aim to integrate educational and mental health goals (Cappella and Lerner 1999; Dryfoos 1994; Streeter and Franklin 2002). These programs, begun in the mid 1980s in a handful of schools, since have spread to thousands of schools across the nation and beyond (Weist et al. 2006). Lawson and Sailor (2000) review this history and note that, despite differences across programs, all presume the need for schools to incorporate a broader agenda beyond academic achievement. Similarly, the President's New Freedom Commission on Mental Health (2003) targeted the increase in numbers and quality of school mental health programs as important goals moving forward.

However, school-based mental health services have proliferated largely in the absence of unifying theoretical and research frameworks to inform policy and practice (Illback et al. 1997; Kutash et al. 2006). Few studies have examined the effectiveness of school-based centers despite their wide proliferation (Rones and Hoagwood 2000) and those that have been evaluated have shown access to children, but little involvement from parents and few child behavioral changes (e.g., Armbruster and Lichtman 1999; Catron et al. 1998). For example, Weist et al. (1999) found that school-based mental health centers were more likely to reach children without any prior service history, relative to a community-based clinic, but there were no further differences in client characteristics or outcomes. Furthermore, a national survey (Foster et al. 2005) indicates that most school-based centers are oriented toward pull-out services with the individual child (i.e., assessment, crisis intervention, individual counseling, and case management), which are resource intensive and contrary to the goal of keeping children in their primary learning environment (the classroom).<sup>2</sup> Consultation to teachers on behavior management strategies is also common in schools (Foster et al. 2005), and can be a productive way to leverage scarce mental health resources to positively impact student learning and behavior (Atkins et al. 1998; Ringeisen et al. 2003). However, teacher consultation is especially difficult in high poverty schools given the deteriorating physical conditions, the prevalence of staff stress, and the challenges experienced by students and families—all of which leave teachers less available for consultation and make classroom programs a challenge to implement, suggesting the need for innovative strategies to reach teachers more effectively (Atkins et al. 2006a).

Finally, the negative school climate in many schools that overwhelms educational and mental health programs largely goes unaddressed by current prevention and intervention initiatives (Gottfredson and Gottfredson 2002; McKay et al. 2003). Despite recent calls to prioritize system and setting change, prevention and intervention strategies tend to focus on the individual child rather the learning contexts of the classroom or school, in part because it may be more difficult to implement, study, and effect change at these broader levels of the ecological model (Catalano et al. 2004; Cooper 2007; Greenberg et al. 2003; Ross et al. 2002). When contextual change is prioritized, programs and services are either not available or not implemented with fidelity in the most stressed schools and communities (e.g., Elias et al. 2003; Ringeisen et al. 2003)—not surprising given the challenges of incorporating new practices into struggling systems (Glisson et al. 2008; Hughes et al. 2005). Thus, as many have noted, these issues suggest that the presumption of integrated mental health approaches

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<sup>2</sup>Some of the child services (e.g., case management) include family outreach components, but sustained and productive contact with families is particularly challenging in low-income schools.

in schools—promotion, prevention, and intervention—is in need of critical analysis (e.g., Baker et al. 2006; Boyd and Shouse 1997). One core problem with these efforts is a narrow focus on conventional definitions of education and mental health programming and inadequate attention to contextual issues that may influence both.

## Focusing on the Core Function of Schools to Promote Student Learning

We propose an ecological model informed by public health and organizational theories to reconceptualize school based mental health services in poor communities, one that focuses on the core function of schools to promote learning. This model emphasizes the natural contexts in which children live, the embedded and interacting nature of these contexts, and the importance of these contexts in influencing children’s growth and development (Bronfenbrenner 1979; Bronfenbrenner and Morris 1998). Ecological theory guides our emphasis on mental health support of school programs and methods, and integration of mental health services within the *natural* space of children’s school experiences. Public health principles inform our focus on prevention as the first priority, with targeted and intensive interventions following efficient and effective implementation of universal strategies (see Nastasi 2004a; Weist 2005). Thus, the school is aided in meeting its goal to help all students learn while simultaneously reducing the numbers of students in need of intensive treatment. Lastly, the socio-technical model of organizational effectiveness—the assumption that the “core technology” of the school to promote learning is embedded within the social context of the school—guides our discussion of specific ways in which mental health can support the development of classroom and school contexts to promote school goals (Glisson et al. 2008).

## Educational Goals are Mental Health Goals

Such a conceptualization purposefully blurs boundaries between the disciplines of education and mental health, but this blurring is not new. John Dewey, in his 1899 APA presidential address, called for embedding schooling in the world of the social sciences, such as psychology (Sarason 2003). In fact, an extensive literature has documented that the core function of schools to advance academic achievement is a critical component of children’s well-being, particularly in elementary school (Masten and Curtis 2000; Roeser and Eccles 2000). Academic success is positively associated with supportive relationships with peers, teachers, and parents (e.g., Buhs et al. 2006; Pianta and Stuhlman 2004) and with reductions in disruptive classroom behavior (Kellam et al. 1998). In turn, positive relationships between teachers and students, as well as positive peer relationships among children, are associated with long-term academic progress and positive school attachment (Hamre and Pianta 2005; Ladd et al. 1996).

Although the link between mental health and academic achievement is not new (see Geierstanger and Amaral 2005; Weist 2005) the focus has been primarily on outputs and not inputs: in other words, the impact of mental health services on achievement, rather than mental health activities that are oriented toward learning. In fact, numerous studies suggest that focusing on academic interventions can improve children’s social and emotional functioning. For example, classwide peer tutoring, reciprocal peer tutoring, and task modifications (increasing structure, enhancing task salience) have been shown to increase on-task classroom behavior and improve socialization with adults and peers (DuPaul and Eckert 1998; Ginsburg-Block et al. 2006; Heller and Fantuzzo 1993). Tutoring has been shown to have larger positive effects on peer social preference than social skills interventions (e.g., Coie and Krehbiel 1984) and equivalent positive effects on teacher and peer relations when compared to school-based counseling (e.g., Catron et al. 1998). Whether academic interventions match or outperform mental health interventions for children’s social



and emotional outcomes, they have the added benefit of simultaneously improving academic achievement (Rohrbeck et al. 2003).

Refocusing the mental health workforce on the goal of learning also may help to bridge the communication gap between the educational and mental health systems, and increases the likelihood that activities are integrated into the existing school organization and structure (Waxman et al. 1999). In some schools and districts, mental health services and prevention initiatives are isolated from the usual resources, rhythms, and activities of schools; they are vulnerable to replacement or removal as funding and priorities change (Han and Weiss 2005; Ringeisen et al. 2003; Elias et al. 2003). The disciplinary isolation is both related to and caused by individual and organizational differences between mental health and education that can make it difficult to form productive partnerships to benefit children (Adelman and Taylor 2006; Knight 2000; Weist and Paternite 2006). Schools are powerful systems with resources, structures, and methods in place to support children's development; as described earlier, these systems may not be working effectively, particularly in stressed communities. Rather than operating at the periphery of these systems, reallocation of mental health workforce roles and responsibilities toward the goal of school success can help build schools' fundamental mission and capacity to support children's learning.

### **Ecological Model Applied in Public School Contexts**

Existing programs that have evidence of effectiveness in some settings may be useful in low-income schools with accompanying modifications reflective of ecological, public health, and organizational principles. As an example, we will discuss the recent interest among schools nationwide in implementing a form of school-wide positive behavioral support called Positive Behavior Intervention and Supports (PBIS; Lewis and Sugai 1999). School-wide positive behavioral support is a set of evidence-based strategies at the individual and system levels that schools implement as a means toward improving student behavior and learning (OSEP Center on Positive Behavioral Interventions and Supports 2004). PBIS is a particular category of positive behavioral support garnering national interest across urban and suburban school districts that is designed to prevent and address disruptive behavior through data-driven system change and individualized strategies (e.g., Horner et al. 2001; Warren et al. 2003).

Although outcome data in urban schools is not yet available (Bohanon et al. 2006), from an ecological, public health perspective, PBIS has several advantages. It focuses on supporting *settings* such as classrooms, hallways, and lunchrooms, it is implemented mainly by school personnel, and it integrates interventions across three tiers—universal, targeted, and intensive (Merrell and Buchanan 2006). Without adaptations, however, PBIS may be difficult to implement sufficiently or sustainably in high need schools. At the universal level, PBIS requires resources and time beyond those that may be available in many schools in high poverty communities. Even in schools with universal interventions fully in operation, it is likely that there will remain a higher percentage of settings and children with targeted and intensive needs than many underfunded schools will be able to manage and address (Durand and Rost 2005). Furthermore, PBIS is only indirectly focused on academic goals, thus the program may remain peripheral to the primary mission of schools.

However, with some modifications to accommodate the unique needs of schools in high poverty communities, each of the limitations noted above can be addressed. First, PBIS data used to assess areas of need and response to intervention may be broadened to include measures of achievement. This is particularly true in underfunded schools where academic achievement is low and school personnel are working to raise test scores. For example, school-wide rules and rewards can include a focus on academic productivity and improvement, with incentives provided to classrooms for assignment completion and

academic growth. Classrooms with low scores on curriculum based measures could be targeted to receive additional support and intervention by school instructional specialists.

Second, although the mental health workforce accessible to a particular school varies, mental health providers from diverse backgrounds may be a critical addition to the PBIS team in low-income schools. Mental health personnel—from full-time school counselors to part-time school psychologists to community-based clinical social workers—could assume roles within each of the three levels: universal, targeted, and intensive. For example, at the universal level, a mental health provider such as a school counselor can support implementation of school-wide programs in the cafeteria, hallways, and playgrounds by providing training and supervision to security guards, lunchroom aides, or playground monitors. At the targeted level, a school social worker or psychologist can collaborate with school administrators or instructional specialists to gather data and intervene in high need classrooms or settings. Lastly, at the intensive level, a community mental health provider linked with a school can provide direct services as well as activate additional resources for students with more chronic academic and behavioral needs (e.g., Atkins et al. 2006a

### Unifying Framework for Activities and Collaboration

The ecological, public health model provides a useful framework for the PBIS adaptation and implementation described above, as well as for more general selection of mental health activities in a school building. Priority is given to activities that occur in natural spaces in and around the school building; prevention is the first order of business to help all children succeed; academic progress is targeted and monitored as the primary goal. When mental health activities fit within this model, an advantage is that the effort is integrated with the school structure, aligned with mental health goals, and when done well, likely to be effective in reducing the demand for more intensive services, which are neither economically feasible nor resource efficient in high poverty schools.

The model also provides a basis for the collaboration necessary to support children in struggling schools through programs like PBIS. As demonstrated in research across disciplines (e.g., Hassett and Austin 1997; Knight 2000; Lawson and Sailor 2000), collaboration among groups is inherently complex and often ambiguous. This is particularly true when individuals differ at multiple levels of the ecological model—at the level of training and experience, as well as organizational structure and goals. Productive collaboration requires a common understanding of the problem to be solved and possible ways to move forward (see Claiborne and Lawson 2005). The ecological, public health model enables mental health staff linked with or employed by schools to communicate in the language of educators and support the primary work of the school—helping all children to learn—thus reducing some of the initial barriers to collaboration. It directs mental health personnel of all backgrounds to prioritize relationships with school staff and build understanding of school activities and structures as prerequisites to implementing and supporting universal programming. Mirroring the three-level public health model, this base of understanding facilitates productive partnerships at the universal level, as well as when more intensive supports are needed for particular places, people, or practices.

### Building the Core Technology of Classrooms

Aligning school and mental health resources to support the core function of schools involves prioritization of learning goals among schools, families, and community organizations, identification of settings in which progress toward meeting such goals can be made, and focus on strategies to support learning with sufficient dosage for positive out-comes. Although children spend time in multiple school settings, such as lunchrooms, auditoriums, and hallways, it is the *classroom* that is the locus of children's most explicit learning

activities, and thus may be considered the primary work unit of schools. This may be particularly true in low-income elementary schools where enrichment activities and recess are limited, and students remain in their home classroom much of the day (Roth et al. 2003). As such, we propose that the classroom is a critical lever for change in the experience and outcomes of schooling.

Applying organizational theory, we conceptualize the classroom as a “work unit” with a “core technology”—raw materials, knowledge, skills, and equipment—to facilitate learning (Glisson 2002). The socio-technical model of organizational effectiveness emphasizes that the core technology is embedded in a social context that determines the success or failure of that technology (Glisson et al. 2008). We propose that in schools, the core technology of the primary work unit should reflect what has emerged in the educational literature as the empirically driven, classroom-level predictors of children’s learning, and the teaching skills and strategies used to impact them. The educational literature has coalesced around three components of effective teacher practices that impact children’s classroom learning: effective instruction, classroom management, and family involvement (Creemers 1994; Stringfield 1994). As described below, these empirically based predictors in elementary school classrooms serve to focus the collaborative efforts by mental health and school personnel to promote student learning.

### **Effective Instruction**

Instructional methods strongly associated with children’s academic success include teaching at the appropriate level, engaging in high quality teacher–student interactions, focusing on mastery of material, leading organized and engaging lessons, and providing repeated opportunities for practice, feedback, and assessment (e.g., Creemers 1994; Slavin 1987; Walberg and Paik 2000). Many of these factors may be especially important for low achieving students in under-funded school districts (Brophy and Good 1986). Peer Assisted Learning and Reciprocal Peer Tutoring are examples of programs aligned with the school goal of increasing achievement and prosocial behaviors, in this case through the influence of peers working in tutor-tutee roles on reading (Fuchs et al. 2000) or mathematics (Fantuzzo et al. 1992). Peer tutoring programs use instructional methods associated with academic success, such as opportunities to practice, immediate corrective feedback, academic level matched to instructional level, and engaging and motivating lessons. A meta-analysis of 90 studies found that students participating in peer assisted learning programs made moderate to high achievement gains, with particular benefit for younger elementary school students, low income students, and urban students (Rohrbeck et al. 2003). A second meta-analytic review of 36 studies similarly revealed that peer tutoring improved students’ peer relations and enhanced their self-confidence, again particularly among low-income, urban, and minority children in early elementary school (Ginsburg-Block et al. 2006).

### **Classroom Management**

Beyond instructional methods, teachers’ skills in behavior management are critical to creating classrooms in which students can achieve academic and social success (e.g., Creemers 1994; Stringfield 1994). Classroom management refers to a teacher’s ability to promote classroom order and discipline, as well as establish a safe environment and positive classroom climate, all of which are related to student achievement through their impact on effective instruction and opportunities to learn (Gettinger 1988; Hamre and Pianta 2007). For classrooms in which teachers deal with a high incidence of disruptive behaviors (Tolan and Henry 1996), the most successful psychosocial interventions rely on teachers to implement classroom contingency-based behavior management programs (e.g., Kazdin 1995). One example is the Good Behavior Game (Barrish et al. 1969), a classwide strategy in which students participate in a group-based reward program to reduce disruptive behavior



and increase academic time on task. Embry (2002) offers a thorough review of the Good Behavior Game and its robust effectiveness in diverse classrooms, including the reduction of aggression and suspensions among urban low-income students (see Dolan et al. 1993; Ialongo et al. 2001). Like peer tutoring, the Good Behavior Game incorporates students as contributors to effective classroom management, harnessing their potential to influence one another in a positive direction toward increased time for academic instruction and likelihood of prosocial interactions.

### Parent Involvement

Extensive empirical research indicates that parent involvement in children's learning, and teacher efforts to enhance parent involvement, are associated with improved academic outcomes for children (Henderson and Berla 1994; Epstein and Dauber 1991; Barnard 2004), especially among low-income students (Jeynes 2005). Parental attendance at school events and responsiveness to teacher communications are related to children's positive attitudes toward school (Hill and Craft 2003). Several home-based activities support learning, such as routines that promote adequate sleep and nutrition, arriving at school on-time and with the necessary instructional materials, home-based reading to children, and homework support (Hansen 1969; Mitru et al. 2002; Olympia et al. 1994; Warden et al. 1982). The School-Home Note (Kelley 1990), Daily Report Card (Owens et al. 2003), and Good News Notes (Blechman et al. 1981) are strategies to improve teacher-parent communication regarding student learning and behavior in the classroom. Although generally in written format, these messages can be communicated orally to avoid challenges with parent literacy, and then continued as brief and simple written charts. As an aspect of classroom interventions, these strategies have been related to productive communication, positive teacher-parent relationships, and student achievement (e.g., Kelley 1990; Hoover-Dempsey et al. 2002). Other effective outreach to parents includes encouragement of home-based learning activities such as interactive homework and family-child reading (e.g., Epstein and Van Voorhis 2001; Hoover-Dempsey et al. 2001), strategies that are especially important for parents unable to attend school events due to work or childcare responsibilities, or more intangible barriers related to parental empowerment or perceptions of negative school climate (Chavkin and Williams 1989; McKay et al. 2003).

### Mobilizing School and Community Resources

Comprehensive school-based programs to improve student learning and behavior often are difficult to sustain with existing school or community resources, particularly in low-income areas (Foster et al. 2005; Wilson et al. 2003); and, as noted previously, school mental health clinics struggle to meet the extensive and intensive needs of low-income students, and often remain isolated from the core function of schools. However, a reconceptualization of the functions and benefits of community mental health providers and school personnel focused on improving student *learning* not only increases the likelihood that prevention and intervention strategies will be more *available* and *sustainable* in high poverty communities, but also enables leveraging of resources indigenous to a home, school, and surrounding community. Capitalizing on indigenous resources ensures that prevention and intervention programs implemented in schools are appropriate to the needs and abilities of existing personnel, and aids in the recognition of new opportunities to support the people and situations most proximal to children's learning and development, such as parents, teachers, and children's peers.

For example, paraprofessionals from the local community or school who share demographic characteristics with the target population can influence behavior change due to their shared experiences, opportunities for natural empathy, and reduced social distance (Friesen and Koroloff 1990; Grant et al. 1999). Community members allying with mental health

providers can enhance the availability of and participation in services, reduce stigmatization, increase accessibility, and reduce cost (Orrell-Valente et al. 1999). In addition, change that takes place without the help of an “expert” may create a sense of personal empowerment to help maintain the change (Christensen and Jacobson 1994). Similarly, paraprofessionals or “indigenous therapists” who have conquered similar problems or triumphed in equally challenging circumstances may be perceived as realistic role models by parents (Nielsen 1995). These “natural” resources often are significant sources of influence to children and families and can assist with improving, at the least, the *accessibility of effective* services.

Capitalizing on the same processes as the paraprofessional model, diffusion of innovation theory has shown that influential peers, or key informants, are instrumental as change agents in a wide variety of fields and situations (Gira et al. 2004; Greenhalgh et al. 2004) and innovative interventions are often initiated by a relatively small segment of opinion leaders in a social network (Valente and Davis 1999). Rogers (1983) was the first to observe that key opinion leaders had more influence than professional change agents and suggested that change agents working in collaboration with key opinion leaders can more effectively introduce new innovations and increase the adoption and implementation of those innovations in a social system. This has been substantiated by studies of key opinion leader (KOL) influences on the adoption of innovative practices in both business and public health (e.g., Miller et al. 1998; Vollink et al. 2002).

Recent application of these theories to schools in high poverty neighborhoods revealed successful influences by paraprofessionals and key opinion leaders on parent and teacher behaviors. In one study, key opinion leader teachers who worked in collaboration with mental health providers achieved greater influence on fellow teachers’ use of recommended classroom practices compared to mental health providers alone (Atkins et al. in press). Similarly, in a related study, paraprofessional parent advocates in alliance with mental health staff successfully engaged urban, low-income families in mental health services that included classroom-based support and multiple-family groups (Frazier et al. 2007a). Collectively, these findings suggest that involving influential individuals from among the school or community can enhance the effectiveness and sustainability of services, and help bridge the gap between university-based research and community practices (National Advisory Mental Health Council Workgroup on Child and Adolescent Mental Health Intervention Development and Deployment 2001; U. S. Public Health Service 2000).

Building on these models, one current federally funded study in high poverty Chicago public schools is examining the mobilization of three sets of indigenous resources—community mental health providers, parent advocates, and leader teachers—toward the improvement of child academic and behavioral functioning (*Links to Learning*; Atkins et al. 2006c). These individuals work as a team to support parents and teachers of children with disruptive behavior problems: (a) parent advocates promote parents’ home support of children’s learning, (b) leader teachers introduce colleagues to effective instructional, classroom management, and family outreach strategies (Neal et al. 2008) and (c) community-based case managers and social workers support parents and teachers in improving the contexts in which children spend time, as well as provide direct support to children (see Fig. 1). The linked prevention and intervention activities implemented by the team are integrated into the fabric of the school and sustainable with existing funding streams and agency structures. The targets of support and the activities align with the background and knowledge of each team member to maximize their legitimacy and influence. Results from this study could determine the viability of aligning resources in this way, and determine roles and routines that enhance collaboration and promote children’s learning.

Beyond human resources, schools can link with and activate local community organizations and resources to support students' learning outside of school time and beyond school walls. For instance, many publicly funded after school programs such as those organized by local recreation centers, park districts, or YMCAs include structured time allocated for homework assistance or tutoring. This presents an opportunity for classroom teachers to communicate with after school providers around the instructional levels, strengths, or needs of their students to maximize the opportunities for learning that take place after school (Frazier et al. 2007b). In an ongoing federally funded study of mental health consultation to after school program staff (*Project NAFASI*; Frazier et al. 2007a), consultation during the homework hour has included a combination of academic interventions including curriculum-based measurement, peer-assisted learning, and links with local public libraries (Rohrbeck et al. 2003; Shinn et al. 1989). In addition, mental health providers have introduced the Good Behavior Game (Barrish et al. 1969) to minimize disruptive behavior exhibited in large part by students whose homework exceeded their capability, reflecting what often happens in their classrooms. Open channels of communication among the classroom teachers, after school program staff, and parents around reasonable and appropriate goals for homework provide one more opportunity to buffer the negative effect of poverty on school and neighborhood settings, enhancing children's learning and their after-school experience.

### Using an Iterative Research–Practice Approach

Finally, given the large and urgent needs of children living in concentrated poverty and the potential for schools to buffer the impact of poverty on child functioning, research models that promote efficient understanding of mental health promoting activities in context are critical. An integration of researcher- and context-driven knowledge at *every* stage of the research helps to produce contextual and rigorous knowledge across the spectrum of access, effectiveness, and sustainability of mental health interventions and services (Atkins et al. 2006b). We suggest that a systematic and iterative approach to intervention research, adapted from a model of program development (National Research Council 2002), may be most useful to inform theory, aims, methods, and analytic strategies. This approach necessitates an ongoing interaction between researcher- and context-driven information at the various decision points of a research project. What may be difficult about this interaction is that it requires researchers to balance prior knowledge with openness to new information, such that context is allowed to contribute meaningfully to the continual evolution of research questions and methodologies. In the end, the goal is to produce relevant, precise, and efficient research toward the development of mental health services and interventions that advance both science and practice.

Because most mental health services are not created for children in poverty or examined in impoverished settings (Weisz et al. 2005), formative research or developmental evaluation (e.g., Ostrom et al. 1995; Petrosino 2000; Schaughency and Ervin 2006) can be important tools in adapting and disseminating practices and models to high poverty communities. Formative research is most useful during the process of creating or adapting program content or models, and implementing or coordinating services in innovative ways (Lipsey and Cordray 2000; National Research Council 2002). As Berk and Rossi (1993) have indicated, evaluating programs is in large part about clarifying target population needs, improving program operations, and enhancing quality of service delivery. In poor communities, a combination of cultural, environmental, and economic factors may lead to particular adaptations in program content and implementation approach. Qualitative and quantitative data collected while adapting program content and delivery models allows information to be fed back in an iterative process with the goal of increasing access to effective and sustainable services (Schaughency and Ervin 2006; Gittelsohn et al. 2006).

The design and method of formative studies can facilitate the production of useful information for immediate integration into the ongoing cycle of development and research. Toward this end, short-term designs may be most useful for quickly feeding information back to the development, adaptation, and coordination phases of formative research projects. Mixed method approaches, in which qualitative and quantitative methods are used concurrently, or brief qualitative studies are followed by brief quantitative studies and vice versa, may facilitate breadth and depth of understanding (see Caracelli and Greene 1997; Gittelsohn et al. 2006). For example, qualitative methods may elucidate the ‘*how*’ of service delivery (e.g., implementation obstacles and provider training) whereas quantitative methods may examine the ‘*who*’ of access and retention (e.g., who is and is not being reached). Gathering data from multiple sources across a setting, such as students, parents, teachers, counselors, and administrators within a school, may be critical to understanding the potentially varied perspectives of stakeholders, without which the program may be flawed (Nastasi 2004b; Israel et al. 1995). Finally, formative research can help investigators to develop summative or outcome evaluations that are culturally relevant to the population and context studied, or alternatively, help investigators understand inconsistencies in summative findings that may be based in subtle implementation or contextual differences (National Research Council 2002).

By way of example, in the ongoing longitudinal intervention study in the Chicago Public Schools (described above), an iterative research–practice approach has been used to inform the development of a mental health services model to support teachers and parents in promoting learning and adaptation among K-5th grade children with disruptive behavior problems. In the context of a longitudinal, between-group, pre-post design using multiple measures of program effect, the formative research has taken two forms. Prior to intervention adaptation and implementation, investigators included a set of qualitative methods—interviews, focus groups, and expert consultation—to inform the intervention curricula and staff training (Cappella and Atkins 2006). Results led to alterations in program content, delivery, and measurement, including the integration of a daily report card with conjoint consultation as a means toward productive parent-teacher communication (Kelley 1990; Sheridan and Kratochwill 2008), the initiation of peer-led teacher meetings to support implementation of classroom strategies (e.g., Manouchehri 2002), and the administration of a Hassles Scale as a potential moderator of intervention impact (DeLongis et al. 1988). After the intervention began, formative data collection focused on the documentation of a clinic and field-based supervision model to assist parent advocates, leader teachers, and community providers in providing support in classrooms and homes, with data collected weekly through supervision field notes and teacher- and parent-report surveys. This iterative approach aims to increase the probability that curricula, training, and supervision meet participants’ needs, as well as to shed light on interpretation of summative findings.

## Summary and Conclusion: Where to Go from Here

Poverty is associated with children’s functioning in profound and predictable ways. Schools have an inherent capacity to support children’s mental health and development, and to bridge critical home and community ecologies. More often, however, underfunded schools do not have adequate physical, instructional, and social-emo-tional environments to protect children from the influence of cumulative risk. Prevention efforts are intensifying, but often program implementation is inconsistent, prevention and treatment remain distinct and isolated from one another, and the business of schools—learning—is not the primary goal. Too many children in need of mental health services in high poverty communities remain untreated, effective services are difficult to implement and sustain with given resources, and school-based mental health models are proliferating without compelling evidence of their ability to prevent or attenuate the problems they are designed to address.

Ecological, public health, and organizational theories guide our reconceptualization of mental health service delivery in poor communities to focus on schools' core function and inherent capacity to promote children's learning and development. Ecological theory directs our focus on prevention and intervention efforts across proximal settings (e.g., classrooms, homes) and primary agents (e.g., teachers, parents). Public health principles inform the prioritization of universal programming, with more intensive services added when necessary within the natural context of children's experiences and with the existing infrastructure and resources in the school and community. Socio-technical models of organizational effectiveness guide our emphasis on the classroom as the primary work unit of the school, and thus the main target of interventions—instructional, behavioral, and family-oriented—to enhance learning.

The implications of this model for mental health practice are that the mental health and educational workforce conceptualize learning goals as mental health goals, such that efforts to strengthen the capacity of schools to promote learning are directly relevant to serving the mental health needs of children. This requires cultivating among mental health providers and school personnel shared learning goals, prioritization of interventions that target empirical predictors of learning, and an emphasis on identifying and strengthening the positive influence of indigenous resources in and around the school. Accordingly, investigators have the opportunity to conduct systematic and responsive formative studies that contribute meaningful and contextual information to intervention adaptation and implementation, as well as to integrate theoretical, empirical, and contextual knowledge at multiple stages of the process toward the advancement of science and the development of children.

To be clear, overcoming these challenges in low-income schools and operationalizing this model are but one step toward reducing the risks associated with living in poverty. Economic policies, community development programs, housing and employment opportunities, environmental initiatives, and other efforts are needed to reduce the number of children in poverty and increase the quality of their lives. That said, given the breadth and depth of mental health and academic need among children growing up in poverty, a coalescing of mental health resources around the inherent potential of schools to promote child adaptation can produce a powerful synergy to enhance both mental health and schooling, thus increasing the possibility of positive and productive outcomes for all children.

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## References

- Adelman, H.; Taylor, L. The current status of mental health in schools: A policy and practice analysis. UCLA Center for Mental Health in Schools; Los Angeles, CA: 2006.
- Alexander KL, Entwisle DR, Thompson MS. School performance, status relations, and the structure of sentiment: Bringing the teacher back in. *American Sociological Review*. 1987; 52:665–682. doi: 10.2307/2095602.
- Allen-Meares, P. Where do we go from here? Mental health workers and the implementation of an evidence-based practice. In: Franklin, C.; Harris, MB.; Allen-Meares, P., editors. *The school services sourcebook: A guide for school-based professionals*. Oxford University Press; New York: 2006.



- Armbruster P, Lichtman J. Are school based mental health services effective? Evidence from 36 inner city schools. *Community Mental Health Journal*. 1999; 35:493–504. doi:10.1023/A:1018755100381. [PubMed: 10863986]
- Atkins MS, Frazier SL, Birman D, Adil JA, Jackson M, Graczyk P, et al. School-based mental health services for children living in high poverty urban communities. *Administration and Policy in Mental Health and Mental Health Services Research*. 2006a; 33:146–159. doi:10.1007/s10488-006-0031-9. [PubMed: 16502132]
- Atkins MS, Frazier SL, Cappella E. Hybrid research models: Natural opportunities for examining mental health in context. *Clinical Psychology: Science and Practice*. 2006b; 13:105–108. doi:10.1111/j.1468-2850.2006.00012.x.
- Atkins, MS.; Frazier, SL.; Cappella, E. Mental health service model for children in high poverty urban schools: Uniting indigenous resources around learning; Paper symposium presented at the annual meeting of the American Psychological Society; New York, NY. 2006c;
- Atkins MS, Frazier SL, Leathers SJ, Graczyk PA, Talbott E, Jakobsons L, et al. Teacher key opinion leaders and mental health consultation in urban low-income schools. *Journal of Consulting and Clinical Psychology*. in press.
- Atkins M, McKay M, Arvanitis P, London L, Madison S, Costigan C, et al. An ecological model for school-based mental health services for urban low income aggressive children. *The Journal of Behavioral Health Services & Research*. 1998; 5:64–75. doi:10.1007/BF02287501. [PubMed: 9516295]
- Baker JA, Kamphaus RW, Horne AM, Winsor AP. Evidence for population-based perspectives on children's behavioral adjustment and needs for service delivery in schools. *School Psychology Review*. 2006; 35:31–46.
- Barnard WM. Parent involvement in elementary school and educational attainment. *Children and Youth Services Review*. 2004; 26:39–62. doi:10.1016/j.childyouth.2003.11.002.
- Barrish HH, Saunders M, Wolf MM. Good behavior game: Effects of individual contingencies for group consequences on disruptive behavior in a classroom. *Journal of Applied Behavior Analysis*. 1969; 2:119–124. doi:10.1901/jaba.1969.2-119. [PubMed: 16795208]
- Berk, RA.; Rossi, PH. Thinking about program evaluation. Sage Publications Inc.; Thousand Oaks, CA: 1993.
- Blechman EA, Taylor CJ, Schrader SM. Family problem solving versus home notes as early intervention with high-risk children. *Journal of Consulting and Clinical Psychology*. 1981; 49:919–926. doi:10.1037/0022-006X.49.6.919. [PubMed: 7309959]
- Bohanon H, Fenning P, Carney KL, Minnis-Kim MJ, Moroz KB, Hicks KJ, et al. Schoolwide application of positive behavior support in an urban high school: A case study. *Journal of Positive Behavior Interventions*. 2006; 3:131–145.
- Boyd, WL.; Shouse, RC. The problems and promise of urban schools. In: Walberg, HJ.; Reyes, O.; Weissberg, RP., editors. *Children and youth: Interdisciplinary perspectives*. Sage; Thousand Oaks, CA: 1997.
- Bradley RH, Corwyn RF. Socioeconomic status and child development. *Annual Review of Psychology*. 2002; 53:371–399. doi:10.1146/annurev.psych.53.100901.135233.
- Bronfenbrenner U. Contexts of child rearing: Problems and prospects. *The American Psychologist*. 1979; 34:844–850. doi:10.1037/0003-066X.34.10.844.
- Bronfenbrenner U, Morris P. The ecology of developmental process. *The Handbook of Child Psychology*. 1998; 1:993–1029.
- Brooks-Gunn J, Duncan GJ. The effects of poverty on children. *The Future of Children*. 1997; 7:55–71. doi:10.2307/1602387. [PubMed: 9299837]
- Brooks-Gunn J, Duncan G, Klebanov P, Sealand N. Do neighborhoods influence child and adolescent development? *American Journal of Sociology*. 1993; 99:353–395. doi:10.1086/230268.
- Brophy, J.; Good, T. Teacher behavior and student achievement. In: Wittrock, M., editor. *Handbook of research on teaching*. 3rd ed.. Macmillan; New York: 1986.
- Buhs ES, Ladd GW, Herald SL. Peer exclusion and victimization: Processes that mediate the relation between peer group rejection and children's classroom engagement and achievement? *Journal of Educational Psychology*. 2006; 98:1–13. doi:10.1037/0022-0663.98.1.1.

- Burns B, Schoenwald S, Burchard J, Faw L, Santos A. Comprehensive community-based interventions for youth with severe emotional disorders: Multisystemic therapy and the wraparound process. *Journal of Child and Family Studies*. 1995; 9:283–314. doi:10.1023/A:1026440406435.
- Cappella, E.; Atkins, MS. Links to Learning Stage 1: Formative research to develop an accessible, effective, and sustainable mental health model for children in urban poor schools; Poster presented at the annual meeting of the American Educational Research Association; San Francisco, CA. 2006, April;
- Cappella E, Lerner M. America's schoolchildren: Past, present, and future. *The Future of Children*. 1999; 9:21–29. doi:10.2307/1602702. [PubMed: 10646255]
- Caracelli, VJ.; Greene, JC. Crafting mixed-method evaluation designs. In: Greene, JC.; Caracelli, VJ., editors. *Advances in mixed-method evaluation: The challenges and benefits of integrating diverse paradigms*. New Directions for Program Evaluation. Vol. 74. Jossey-Bass; San Francisco: 1997. p. 19-32.
- Carnegie Council on Adolescent Development. *Turning points: Preparing American youth for the 21st century*, Report of the task force on Education of Youth Adolescents. Author; New York: 1989.
- Catalano R, Berglund ML, Ryan JAM, Lonczak HS, Hawkins JD. Positive youth development in the United States: Research findings on evaluations of positive youth development programs. *Annals of the American Academy of Political and Social Science*. Special Issue: Positive Development. Realizing the Potential of Youth. 2004; 591:98–124.
- Catron, T.; Harris, V.; Weiss, B. Post-treatment results after 2 years of services in the Vanderbilt School-Based Counseling Project. In: Epstein, MH.; Kutash, K.; Dushnowski, AJ., editors. *Outcomes for children and youth with emotional and behavioral disorders and their families: Programs and evaluation best practices*. PRO-ED; Austin, TX: 1998. p. 633-656.
- Center for American Progress. *From poverty to prosperity: A national strategy to cut poverty in half*. Author; Washington, DC: 2007.
- Chavkin NF, Williams DL. Low income parents' attitudes toward parent involvement in education. *Journal of Sociology and Social Welfare*. 1989; 16:17–28.
- Christensen A, Jacobson N. Who (or what) can do psychotherapy: The status and challenge of nonprofessional therapies. *Psychological Science*. 1994; 5:8–14. doi:10.1111/j.1467-9280.1994.tb00606.x.
- Claiborne N, Lawson HA. An intervention framework for collaboration. *Families in Society*. 2005; 86:93–103.
- Coie J, Krehbiel G. Effects of academic tutoring on the social status of low-achieving, socially rejected children. *Child Development*. 1984; 55:1465–1478. doi:10.2307/1130016.
- Cooper JL. The federal case for school-based mental health services and supports. *Journal of the American Academy of Child and Adolescent Psychiatry*. 2007; 47:4–8. [PubMed: 18174820]
- Creemers, BPM. Effective instruction: An empirical basis for a theory of educational effectiveness. In: Reynolds, D.; Creemers, B.; Nesselrodt, P.; Schaffer, E.; Stringfield, S.; Teddlie, C., editors. *Advances in school effectiveness research and practice*. Elsevier Science Inc.; New York: 1994. p. 189-206.
- DeLongis A, Folkman S, Lazarus RS. The impact of daily stress on health and mood: Psychological and social resources as mediators. *Journal of Personality and Social Psychology*. 1988; 54:486–495. [PubMed: 3361420]
- Dilworth-Bart JE, Moore CF. Mercy mercy me: Social injustice and the prevention of environmental pollutant exposures among ethnic minority and poor children. *Child Development*. 2006; 77:247–265. doi:10.1111/j.1467-8624.2006.00868.x. [PubMed: 16611170]
- Dolan LJ, Kellam SG, Brown CH, Werthamer-Larson L, Rebok GW, Mayer LS, et al. The short-term impact of two classroom-based preventive interventions on aggressive and shy behaviors and poor achievement. *Journal of Applied Developmental Psychology*. 1993; 14:317–345. doi:10.1016/0193-3973(93)90013-L.
- Dryfoos, J. *Full-service schools: A revolution in health and social services for children, youth and families*. Jossey-Bass; San Francisco: 1994.
- Duncan GJ, Yeung WJ, Brooks-Gunn J, Smith JR. How much does childhood poverty affect the life chances of children? *American Sociological Review*. 1998; 63:406–423. doi:10.2307/2657556.

- DuPaul G, Eckert T. Academic interventions for students with ADHD: A review of the literature. *Reading & Writing Quarterly: Overcoming Learning Difficulties*. 1998; 14:59–82. doi:10.1080/1057356980140104.
- Durand VM, Rost N. Does it matter who participates in our studies: A caution when interpreting the research on positive behavioral support. *Journal of Positive Behavior Interventions*. 2005; 7:186–188. doi:10.1177/10983007050070030801.
- Elias MJ, Zins JE, Graczyk PA, Weissberg RP. Implementation, sustainability, and scaling up of social-emotional and academic innovations in public schools. *School Psychology Review*. 2003; 32:303–319.
- Embry DD. The Good Behavior Game: A best practice candidate as a universal behavioral vaccine. *Clinical Child and Family Psychology Review*. 2002; 5:273–297. doi:10.1023/A:1020977107086. [PubMed: 12495270]
- Epstein JL, Dauber SL. School programs and teacher practices of parent involvement in inner-city elementary and middle schools. *The Elementary School Journal*. Special Issue: Educational partnerships: Home-school-community. 1991; 91:289–305.
- Epstein JL, Van Voorhis FL. More than minutes: Teachers' roles in designing homework. *Educational Psychologist*. 2001; 36:181–193. doi:10.1207/S15326985EP3603\_4.
- Evans GW. The environment of childhood poverty. *The American Psychologist*. 2004; 59:77–92. doi:10.1037/0003-066X.59.2.77. [PubMed: 14992634]
- Evans GW, Kantrowitz E. Socioeconomic status and health: The potential role of environmental risk exposure. *Annual Review of Public Health*. 2002; 23:303–331. doi:10.1146/annurev.publhealth.23.112001.112349.
- Evans SW, Weist MD. Implementing empirically supported treatments in the schools: What are we asking? *Clinical Child and Family Psychology Review*. 2004; 7:263–267. doi:10.1007/s10567-004-6090-0. [PubMed: 15648280]
- Fantuzzo JW, King JA, Heller LR. Effects of reciprocal peer tutoring on mathematics and school adjustment: A component analysis. *Journal of Educational Psychology*. 1992; 84:331–339. doi:10.1037/0022-0663.84.3.331.
- Farmer E, Burns B, Phillips S, Angold A, Costello E. Pathways into and through mental health services for children and adolescents. *Psychiatric Services (Washington, DC)*. 2003; 54:60–66. doi:10.1176/appi.ps.54.1.60.
- Federal Interagency Forum on Child and Family Statistics. *America's children: Key national indicators of well-being, 2007*. U.S. Government Printing Office; Washington, DC: 2007.
- Foster, S.; Rollefson, M.; Doksum, T.; Noonan, D.; Robinson, G.; Tiech, J. *School mental health services in the United States: 2002–2003* (DHHS Pub. No. [SMA] 05-4068). Center for Mental Health Services, Substance Abuse and Mental Health Administration; Rockville, MD: 2005.
- Frazier SL, Adil JA, Atkins MS, Gathright T, Jackson M. Can't have one without the other: Mental health providers and community parents reducing barriers to services for families in urban poverty. *Journal of Community Psychology*. 2007a; 35:435–446. doi:10.1002/jcop.20157.
- Frazier SL, Cappella E, Atkins MS. Linking mental health and after-school systems for children in urban poverty: Preventing problems, promoting possibilities. *Administration and Policy in Mental Health and Mental Health Services Research*. 2007b; 34:389–399. doi:10.1007/s10488-007-0118-y. [PubMed: 17340183]
- Friesen BJ, Koroloff NM. Family-centered services: Implications for mental health administration and research. *Journal of Mental Health Administration*. 1990; 17:13–25. doi:10.1007/BF02518576. [PubMed: 10104410]
- Fuchs D, Fuchs LS, Burish P. Peer-assisted learning strategies: An evidence-based practice to promote reading achievement. *Learning Disabilities Research & Practice*. 2000; 15:85–91. doi:10.1207/SLDRP1502\_4.
- Geierstanger, SP.; Amaral, G. *School-based health centers and academic performance: What is the intersection?; Meeting Proceedings, April 2004*. White Paper; Washington, DC: National Assembly on School-Based Health Care. 2005;
- Gettinger M. Methods of proactive classroom management. *School Psychology Review*. 1988; 17:227–242.

- Ginsburg-Block MD, Rohrbeck CA, Fantuzzo JW. A meta-analytic review of social, self-concept, and behavioral outcomes of peer assisted learning. *Journal of Educational Psychology*. 2006; 8:732–749. doi:10.1037/0022-0663.98.4.732.
- Gira EC, Kessler ML, Poertner J. Influencing social workers to use research evidence in practice: Lessons from medicine and the allied health professions. *Research in the Sociology of Work*. 2004; 14:68–79. doi:10.1177/1049731503262128.
- Gittelsohn J, Steckler A, Johnson CC, Pratt C, Grieser M, Pickrel J, et al. Formative research in school and community-based health programs and studies: “State of the art” and the TAAG approach. *Health Education & Behavior*. 2006; 33:25–39. doi:10.1177/1090198105282412. [PubMed: 16397157]
- Glisson C. The organizational context of children’s mental health services. *Clinical Child and Family Psychology Review*. 2002; 5:233–253. doi:10.1023/A:1020972906177. [PubMed: 12495268]
- Glisson C, Schoenwald SK, Kelleher K, Landsverk J, Hoagwood KE, Mayberg S, et al. Therapist turnover and new program sustainability in mental health clinics as a function of organizational culture, climate, and service structure. *Administration and Policy in Mental Health and Mental Health Services Research*. 2008
- Gottfredson DC, Gottfredson GD. Quality of school-based prevention programs: Results from a national survey. *Journal of Research in Crime and Delinquency*. 2002; 39:3–35.
- Grant T, Ernst C, Streissguth A. Intervention with high-risk alcohol and drug-abusing mothers. I. Administrative strategies of the Seattle model of paraprofessional advocacy. *Journal of Community Psychology*. 1999; 27:1–18. doi:10.1002/(SICI)1520-6629(199901)27:1 1::AID-JCOPI 3.0.CO;2-3.
- Greenberg MT, Weissberg RP, O’Brien MU, Zins JE, Fredericks L, Resnik H, et al. *The American Psychologist*. 2003; 58:466–474. doi:10.1037/0003-066X.58.6-7.466. [PubMed: 12971193]
- Greenhalgh T, Robert G, Macfarlane F, Bate P, Kyriakidou O. Diffusion of innovations in service organizations: Systematic review and recommendations. *The Milbank Quarterly*. 2004; 82:581–629. doi:10.1111/j.0887-378X.2004.00325.x. [PubMed: 15595944]
- Hamre BK, Pianta RC. Can instructional and emotional support in the first-grade classroom make a difference for children at risk of school failure? *Child Development*. 2005; 76:949–967. doi:10.1111/j.1467-8624.2005.00889.x. [PubMed: 16149994]
- Hamre, BK.; Pianta, RC. Learning opportunities in preschool and early elementary classrooms. In: Pianta, RC.; Cox, MJ.; Snow, K., editors. *School readiness, early learning, and the transition to kindergarten*. Paul H. Brookes; Baltimore: 2007.
- Han SS, Weiss B. Sustainability of teacher implementation of school-based mental health programs. *Journal of Abnormal Child Psychology*. 2005; 33:665–679. doi:10.1007/s10802-005-7646-2. [PubMed: 16328743]
- Hansen H. The impact of the home literacy environment on reading attitude. *Elementary English*. 1969; 46:17–24.
- Haskins R, Sawhill I. The next generation of antipoverty policies. *The Future of Children*. 2007; 17:3–16. doi:10.1353/foc.2007.0017.
- Hassett S, Austin MJ. Service integration: Something old and something new. *Administration in Social Work*. 1997; 21:9–29. doi:10.1300/J147v21n03\_02. [PubMed: 10176511]
- Heller L, Fantuzzo J. Reciprocal peer tutoring and parent partnership: Does parent involvement make a difference? *School Psychology Review*. 1993; 22:517–534.
- Henderson, A.; Berla, N. *A new generation of evidence: The family is critical to student achievement*. National Committee for Citizens in Education; Washington, DC: 1994.
- Hill N, Craft S. Parent-school involvement and school performance: Mediated pathways among socioeconomically comparable African American and Euro-American families. *Journal of Educational Psychology*. 2003; 95:74–83. doi:10.1037/0022-0663.95.1.74.
- Hoagwood K, Erwin HD. Effectiveness of school-based mental health services for children: A 10-year research review. *Journal of Child and Family Studies*. 1997; 6:435–451. doi:10.1023/A:1025045412689.

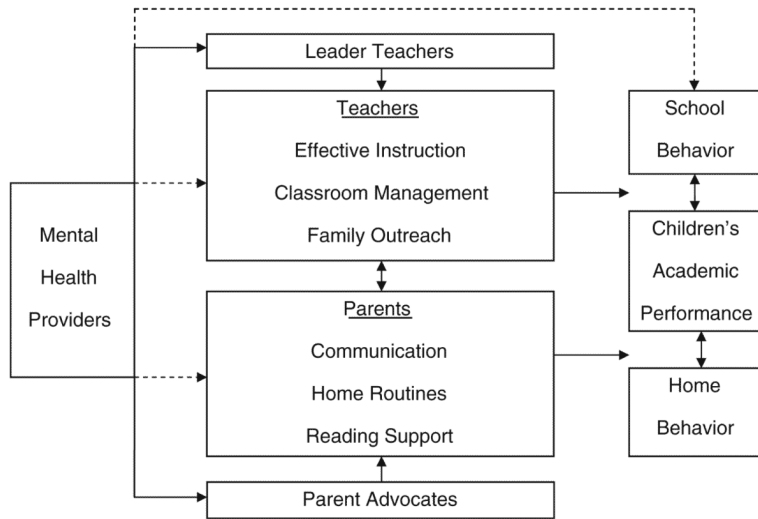
- Hoover-Dempsey KV, Battiato AC, Walker JMT, Reed RP, DeJong JM, Jones KP. Parental involvement in homework. *Educational Psychologist*. 2001; 36:195–209. doi:10.1207/S15326985EP3603\_5.
- Hoover-Dempsey KV, Walker JMT, Jones KP, Reed RP. Teachers Involving Parents (TIP): Results from an in-service teacher education program for enhancing parental involvement. *Teaching and Teacher Education*. 2002; 18:843–867. doi:10.1016/S0742-051X(02)00047-1.
- Horner RH, Sugai G, Lewis-Palmer T, Todd AW. Teaching school-wide behavioral expectations. *Report on Emotional & Behavioral Disorders in Youth*. 2001; 1:77–79.
- Hughes JN, Cavell TA, Meehan BT, Zhang D, Collie C. Adverse school context moderates the outcomes of selective interventions for aggressive children. *Journal of Consulting and Clinical Psychology*. 2005; 73:731–736. doi:10.1037/0022-006X.73.4.731. [PubMed: 16173861]
- Ialongo N, Poduska J, Werthamer L, Kellam S. The distal impact of two-first-grade preventive interventions on conduct problems and disorder in early adolescence. *Journal of Emotional and Behavioral Disorders*. 2001; 9:146–160.
- Illback, R.J.; Cobb, C.T.; Joseph, H.M. *Integrated services for children and families: Opportunities for psychological practice*. American Psychological Association; Washington, DC: 1997.
- Ingersoll RM. The problem of underqualified teachers in American secondary schools. *Educational Researcher*. 1999; 28:26–37.
- Ingersoll RM. Teacher turnover and teacher shortages: An organizational analysis. *American Educational Research Journal*. 2001; 38:499–534. doi:10.3102/00028312038003499.
- Israel BA, Cummings KM, Dignan MB, Heaney CA, Perales DP, Simons-Morton BG, et al. Evaluation of health education programs: Current assessment and future directions. *Health Education Quarterly*. 1995; 22:364–389. [PubMed: 7591790]
- Jeynes WH. A meta-analysis of the relation of parental involvement to urban elementary school student academic achievement. *Urban Education*. 2005; 40:237–269. doi:10.1177/0042085905274540.
- Kazdin, A. *Conduct disorder in children and adolescents*. 2nd ed.. Sage; Newbury Park, CA: 1995.
- Kellam S, Mayer L, Rebok G, Hawkins W, Dohrenwend B. Effects of improving achievement on aggressive behavior and of improving aggressive behavior on achievement through two preventive interventions: An investigation of causal paths. *Adversity, stress, and psychopathology*. 1998:486–505.
- Kelley, M.L. *School-home notes: Promoting children's classroom success*. Guilford; NY: 1990.
- Knight I. Learning to collaborate: A study of individual and organizational learning, and interorganizational relationships. *Journal of Strategic Marketing*. 2000; 8:121–138. doi:10.1080/096525400346213.
- Korenman S, Miller J, Sjaastad J. Long-term poverty and child development in the United States: Results from the NLSY. *Children and Youth Services Review*. 1995; 17:127–155. doi:10.1016/0190-7409(95)00006-X.
- Kutash, K.; Duchnowski, A.; Lynn, N. *School-based mental health: An empirical guide for decision makers*. University of South Florida, The Louis De La Parte Florida Mental Health Institute, Department of Child and Family Studies, Research and Training Center for Children's Mental Health; 2006.
- Ladd GW, Kochenderfer BJ, Coleman CC. Friendship quality as a predictor of young children's early school adjustment. *Child Development*. 1996; 67:1103–1118. doi:10.2307/1131882. [PubMed: 8706512]
- Lawson HA, Sailor W. Integrating services, collaborating, and developing connections with schools. *Focus on Exceptional Children*. 2000; 33:1–22.
- Lewis TJ, Sugai G. Effective behavior support: A systems approach to proactive school-wide management. *Focus on Exceptional Children*. 1999; 31:1–24.
- Lipsey MW, Cordray DS. Evaluation methods for social intervention. *Annual Review of Psychology*. 2000; 51:345–375. doi:10.1146/annurev.psych.51.1.345.
- Manouchehri A. Developing teaching knowledge through peer discourse. *Teaching and Teacher Education*. 2002; 18:715–737.



- Masten A, Curtis W. Integrating competence and psychopathology: Pathways toward a comprehensive science of adaptation in development. *Development and Psychopathology*. 2000; 12:529–550. doi:10.1017/S095457940000314X. [PubMed: 11014751]
- McKay MM, Atkins MS, Hawkins T, Brown C, Lynn CJ. Inner city African-American parental involvement in children's schooling: Racial socialization and parent support from the parent community. *American Journal of Community Psychology*. 2003; 32:107–114. doi:10.1023/A:1025655109283. [PubMed: 14570440]
- McLoyd VC. Socioeconomic disadvantage and child development. *The American Psychologist*. 1998; 53:185–204. doi:10.1037/0003-066X.53.2.185. [PubMed: 9491747]
- Merrell KW, Buchanan R. Intervention selection in school-based practice: Using public health models to enhance systems capacity of schools. *School Psychology Review*. 2006; 35:167–180.
- Miller R, Klotz D, Eckholdt H. HIV prevention with male prostitutes and patrons of hustler bars: Replication of an HIV preventive intervention. *American Journal of Community Psychology*. 1998; 26:97–131. doi:10.1023/A:1021886208524. [PubMed: 9574500]
- Mitru G, Millrood D, Mateika J. The impact of sleep on learning and behavior in adolescents. *Teachers College Record*. 2002; 104:704–726. doi:10.1111/1467-9620.00176.
- Nastasi BK. Meeting the challenges of the future: Integrating public health and public education for mental health promotion. *Journal of Educational & Psychological Consultation*. 2004a; 15:295–312. doi:10.1207/s1532768xjepc153&4\_6.
- Nastasi, BK. Mental health program evaluation—A multicomponent, multiperspective mixed method approach. In: Robinson, KE., editor. *Advances in school-based mental health interventions: Best practices and program models*. Civic Research Institute; Kingston, NJ: 2004b. p. 1-21.
- National Advisory Mental Health Council Workgroup on Child Adolescent Mental Health Intervention Development Deployment. *Blueprint for Change: Research on Child and Adolescent Mental Health*. Author; Washington, DC: 2001.
- National Center for Health Statistics. *Health, United States, 2006: With chartbook on trends in the health of Americans*. Government Printing Office; Hyattsville, MD: 2006.
- National Research Council. *Scientific research in education. Committee on Scientific Principles for Education Research*. National Academy Press; Washington, DC: 2002.
- Neal JW, Shernoff ES, Frazier SL, Stachowicz E, Frangos R, Atkins MS. Change from within: Engaging teacher key opinion leaders in the diffusion of interventions in urban schools. *The Community Psychologist*. 2008; 41:53–57.
- Nielsen B. Paraprofessionals: They can be competent, and there is more good news. *Journal of Psychological Practice*. 1995; 1:133–140.
- OSEP Center on Positive Behavioral Interventions and Supports. *School-wide positive behavior support*. University of Oregon; Eugene, OR: 2004.
- Olympia DE, Sheridan SM, Jenson WR. Homework: A natural means of home-school communication. *School Psychology Quarterly*. 1994; 9(1):60–80. doi:10.1037/h0088844.
- Orrell-Valente J, Pinderhughes E, Valente E, Laird R, Conduct Problems Prevention Research Group. If it's offered, will they come? Influences on parents' participation in a community-based conduct problems prevention program. *American Journal of Community Psychology*. 1999; 27:753–783. doi:10.1023/A:1022258525075. [PubMed: 10723534]
- Ostrom CW, Lerner RM, Freel MA. Building the capacity of youth and families through university-community collaborations: The Development-in-Context Evaluation (DICE) Model. *Journal of Adolescent Research*. 1995; 10:427–448. doi:10.1177/0743554895104001.
- Owens JS, Richerson L, Beilstein EA, Crane A, Murphy CE, Vancouver JB. School-based mental health programming for children with inattentive and disruptive behavior problems: First-year treatment outcome. *Journal of Attention Disorders*. 2003; 9:261–274. doi:10.1177/1087054705279299. [PubMed: 16371673]
- Petrosino A. Mediators and moderators in the evaluation of programs for children: Current practice and agenda for improvement. *Evaluation Review*. 2000; 24:47–72. [PubMed: 10747770]
- Pianta RC, Belsky J, Houts R, Morrison F, National Institute of Child Health and Human Development (NICHD) Early Child Care Research Network. Opportunities to learn in America's elementary classrooms. *Science*. 2007; 315:1795–1796. doi:10.1126/science.1139719. [PubMed: 17395814]

- Pianta RC, Stuhlman M. Conceptualizing risk in relational terms: Associations among the quality of child-adult relationships prior to school entry and children's developmental outcomes in first grade. *Educational and Child Psychology*. 2004; 21:32–45.
- President's New Freedom Commission on Mental Health. *Achieving the promise: Transforming mental health care in America*. Final report for the President's New Freedom Commission on Mental Health (SMA Publication No. 03-3832). Author; Rockville, MD: 2003.
- Ringeisen H, Henderson K, Hoagwood K. Context matters: Schools and the "research to practice gap" in children's mental health. *School Psychology Review*. 2003; 32:153–168.
- Rist R. Student social class and teacher expectations: The self-fulfilling prophecy in ghetto education. *Harvard Educational Review*. 1970; 40:411–451.
- Roeser, R.; Eccles, J. Schooling and mental health. In: Sameroff, A.; Lewis, M.; Miller, S., editors. *Handbook of developmental psychopathology*. 2nd ed.. Kluwer; NY: 2000. p. 135-156.
- Rogers, E. *Diffusion of innovations*. Free Press; New York: 1983.
- Rohrbeck CA, Ginsburg-Block MD, Fantuzzo JW, Miller TR. Peer-assisted learning interventions with elementary school students: A meta-analytic review. *Journal of Educational Psychology*. 2003; 95:240–257. doi:10.1037/0022-0663.95.2.240.
- Rones M, Hoagwood K. School-based mental health services: A research review. *Clinical Child and Family Psychology Review*. 2000; 34:223–241. doi:10.1023/A:1026425104386. [PubMed: 11225738]
- Ross MR, Powell SR, Elias MJ. New roles for school psychologists: Addressing the social and emotional learning needs of students. *School Psychology Review*. 2002; 31:43–52.
- Roth J, Brooks-Gunn J, Linver M, Hofferth S. What happens during the school day? Time diaries from a national sample of elementary school teachers. *Teachers College Record*. 2003; 105:317–343. doi:10.1111/1467-9620.00242.
- Sarason SB. American psychology and schools: A critique. *American Journal of Community Psychology*. 2003; 32:99–106. doi:10.1023/A:1025603125213. [PubMed: 14570439]
- Schaughency E, Ervin R. Building capacity to implement and sustain effective practices to better serve children. *School Psychology Review*. 2006; 35:155–166.
- Schwartz D, Gorman A. Community violence exposure and children's academic functioning. *Journal of Educational Psychology*. 2003; 95:163–173. doi:10.1037/0022-0663.95.1.163.
- Sheridan, SM.; Kratochwill, TR. *Conjoint behavioral consultation: Promoting family school connections and interventions*. 2nd ed.. Springer Science & Business Media; New York: 2008.
- Shinn MR, Rosenfield S, Knutson N. Curriculum-based assessment: A comparison and integration of models. *School Psychology Review*. 1989; 25:519–539.
- Slavin R. A theory of school and classroom organization. *Educational Psychologist*. 1987; 22(2):89–108. doi:10.1207/s15326985ep2202\_1.
- Streeter, CL.; Franklin, C. Standards for school social work in the 21st century. In: Roberts, AR.; Greene, GL., editors. *Social workers' desk reference*. Oxford University Press; New York: 2002. p. 612-618.
- Stringfield, S. A model of elementary school effects. In: Reynolds, D.; Creemers, B.; Nesselrodt, P.; Schaffer, E.; Stringfield, S.; Teddlie, C., editors. *Advances in school effectiveness research and practice*. Elsevier; New York: 1994. p. 153-188.
- Tolan PH, Henry D. Patterns of psychopathology among urban poor children: Comorbidity and aggression effects. *Journal of Consulting and Clinical Psychology*. 1996; 64:1094–1099. doi: 10.1037/0022-006X.64.5.1094. [PubMed: 8916642]
- UNICEF. *Innocente Report Card 7: Child poverty in perspective: An overview of child well-being in rich countries*. Innocente Research Centre; Florence: 2007.
- U. S. Public Health Service. *Report of the Surgeon General's conference on children's mental health: A national action agenda*. Author; Washington, DC: 2000.
- Valente TW, Davis RL. Accelerating the diffusion of innovations using opinion leaders. *The Annals of the American Academy of Political and Social Science*. 1999; 566:55–67. doi: 10.1177/0002716299566001005.

- Vollink T, Meertens R, Midden C. Innovating 'diffusion of innovation' theory: Innovation characteristics and the intention of utility companies to adopt energy conservation interventions. *Journal of Environmental Psychology*. 2002; 22:333–344. doi:10.1006/jev.2001.0237.
- Wadsworth ME, Achenbach TM. Explaining the link between low socioeconomic status and psychopathology: Testing two mechanisms of the social causation hypothesis. *Journal of Consulting and Clinical Psychology*. 2005; 73:1146–1153. doi:10.1037/0022-006X.73.6.1146. [PubMed: 16392987]
- Walberg, HJ.; Paik, SJ. Effective educational practices. Educational Practices Series–3. International Academy of Education; Brussels, Belgium: 2000.
- Warden N, Duncan M, Sommars E. Nutritional changes heighten children's achievement: A 5-year study. *International Journal of Biosocial Research*. 1982; 3:72–74.
- Warren JS, Edmonson HM, Griggs P, Lassen SR, McCart A, Turnbull A, et al. Urban applications of schoolwide positive behavior support: Critical issues and lessons learned. *Journal of Positive Behavior Interventions*. 2003; 5:80–91. doi:10.1177/10983007030050020301.
- Waxman R, Weist M, Benson D. Towards collaboration in the growing education-mental health interface. *Clinical Psychology Review*. 1999; 19:239–258. doi:10.1016/S0272-7358(98)00072-5. [PubMed: 10078422]
- Weinstein, RS. Reaching higher: The power of expectations in schooling. Harvard University Press; Cambridge, MA: 2002.
- Weist MD. Fulfilling the promise of school-based mental health: Moving toward a *public mental health promotion* approach. *Journal of Abnormal Child Psychology*. 2005; 33:735–741. doi: 10.1007/s10802-005-7651-5. [PubMed: 16328748]
- Weist MD, Lindsey M, Moore E, Slade E. Building capacity in school mental health. *International Journal of Mental Health Promotion*. 2006; 8:30–36.
- Weist MD, Myers CP, Hastings E, Ghuman H, Han Y. Psychosocial functioning of youth receiving mental health services in the schools versus community mental health centers. *Community Mental Health Journal*. 1999; 35:69–81. doi:10.1023/A:1018700126364. [PubMed: 10094511]
- Weist MD, Paternite CE. Building an interconnected policy-training-practice-research agenda to advance school mental health. *Education & Treatment of Children*. 2006; 29:173–196.
- Weisz JR, Jensen Doss AJ, Hawley KM. Youth psychotherapy outcome research: A review and critique of the evidence base. *Annual Review of Psychology*. 2005; 56:337–363. doi:10.1146/annurev.psych.55.090902.141449.
- Wilson SJ, Lipsey MW, Derzon JH. The effects of school-based intervention programs on aggressive behavior: A meta-analysis. *Journal of Consulting and Clinical Psychology*. 2003; 71:136–149. doi:10.1037/0022-006X.71.1.136. [PubMed: 12602434]



**Fig. 1.**  
*Links to learning service model for community mental health linked with urban schools*