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School psychology: a public health framework
I. From evidence-based practices to evidence-based policies

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The release of the Surgeon General’s National Action Agenda on Children’s Mental Health (2001) signaled a turning point in public policy about children’s mental health. This report, preceded as it was by the seminal report of the Surgeon General on Mental Health (2000) and followed by the Surgeon General’s Youth Violence (2001) and Culture, Race and Ethnicity Reports (2002), represented a critical shift in federal health priorities. These reports were thematically linked around the premises that (a) mental health was an integral, core, and significant component of the public health system; (b) reducing stigma and increasing early identification of mental health problems was essential to a sound public health system; and (c) strengthening the link between research and practice will achieve the greatest yield for the public. These four reports included exhaustive reviews of the science base on risk and protective processes related to mental health; discussion of stigma, culture, and the contexts of care; reviews of a range of efficacious and effective preventive interventions, therapies, and services, including criteria for evaluating the strength of the evidence; and extensive recommendations on how to close the wide science to practice gap.

During the year of the release of the Surgeon General’s Children’s National Action Agenda, several other significant documents related to children’s mental health were also issued, including the Child Mental Health Foundation and Agencies Network Monograph “Off to A Good Start” on social–emotional school readiness (Child Foundations and Agencies Network Monograph, 2000) and the Institute of Medicine Report “From Neurons to Neighborhoods: The Science of Early Childhood Development” on the

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integration of basic science knowledge, intervention programs, and policies for young children (Institute of Medicine, 2000). In 2002, the National Institute of Mental Health released the “Blueprint for Change: Research on Child and Adolescent Mental Health Research” which reviewed the past decade of research on child and adolescent mental health, highlighted gaps in research knowledge, and outlined a research plan to accelerate the pace of intervention development for children with mental health needs (NIMH, 2002). Altogether, these reports created a unified vision of how to strengthen, link, and apply science-based findings about mental health to real-world practice, service delivery, and policy.

As highlighted in the Surgeon General’s National Action Agenda and Mental Health Report (2000, 2001), the provision of mental health services for children and adolescents is fragmented across various systems, including education, primary care, child welfare, juvenile justice, specialty mental health, and substance abuse. In fact, only a small percentage of children are served within specialty mental health settings (Burns et al., 1995). Although other systems such as child welfare, juvenile justice, and substance abuse also serve significant numbers of children with mental health needs, the majority of mental health services are provided in primary care and in schools. Yet only a small percentage of children in need of services receive them. While one-fifth of children in the United States have a diagnosable mental disorder, only a small percentage of those with mental health needs (i.e., 6% to 25%) receive mental health services of any kind (Burns et al., 1995; Costello, Angold, Burns et al., 1996; Leaf, Alegria, Cohen et al., 1996; Roberts, Attkinsson, & Rosenblatt, 1998; Ringel & Sturm, 2001). Notably, minority children suffer the greatest disadvantage in terms of accessing mental health services (US Public Health Service, 2000; U.S. Department of Health and Human Services, 1999, 2001; Ringel & Sturm, 2001; NIMH, 2001).

Estimates from the Great Smoky Mountain Study (Costello et al., 1996) and other population-based, epidemiological studies (Roberts, Atkisson, & Rosenblatt, 1998) indicate that from 16% to 22% of children and adolescents up to the age of 18 have a diagnosable disorder; five to nine percent of youth can be classified as seriously emotionally disturbed. Further, approximately 4–8% of children, ages 9–17, had severe psychiatric disorders, and only about 20% of children with the most serious needs were obtaining mental health services (Duncan, Forness, & Hartsough, 1995; Forness, Kavale, & Lopez, 1993; Forness et al., 1996; Kazdin, Holland, & Crowley, 1997). Of those fortunate few who do receive some type of mental health care, the overwhelming majority—70–80%—receives them within the school setting. In fact, for most children in the country, the school system provides the only source of mental health service (Burns et al., 1995). Based on such findings, Burns et al. (1995) concluded that schools are children’s “de facto” mental health system, providing the bulk of mental health care to children.

Not only do schools provide the majority of mental health services, but when school systems are compared to other youth-serving systems for severity of mental health needs, the youth identified within the special education school system have the highest rates of mental disorders, surpassing even those of the specialty mental health care. Garland et al., in a survey of a random sample of 1715 children and adolescents receiving services in one or more of five San Diego County public systems, found that the prevalence of any mental
disorder was highest for youth in the special education category (70.2%), followed by the mental health system and the alcohol and drug abuse systems (60.8% and 60.3%). Co-morbidity was also highest among the children served in schools. The most common diagnoses were ADHD and disruptive behavior disorders.

The impact of mental disorders has adverse consequences both for the individual child and beyond. Mental health problems negatively influence children’s school functioning (Hinshaw et al., in press), and children with disabling mental health conditions tend to be high utilizers of special education and health services (Newacheck & Halfon, 1998; Forness, in press; Danielson, in press). Further, these conditions add to caretaker burdens (including lost income for parents) and have long-term impacts on social and economic status in adulthood. Angold, Messer, and Stangl (1998) found that significant predictors of perceived caretaker burden were levels of child symptomatology, impairment, and parental mental health problems.

Given this context of children’s mental health needs and the important role of the schools, and given the current federal stance towards applying science-based practices to improve the quality of mental health care for children, school psychology has a unique opportunity to rise to the occasion. The gap between research-based practices for youth with mental health problems and their application in school settings is wide, and new models of programmatic research are needed that will address the important questions about how to implement, disseminate, and encourage organizational systems change to sustain high quality mental health and educational practices within schools.

The purpose of this article is to describe current perspectives on evidence-based practices in psychology, medicine, and education; to discuss challenges in the implementation and dissemination of research-based findings into schools and in particular understanding the fit between empirically validated interventions and organizational structures; to describe differences between current models of organizational behavior as studied in children’s mental health services and in education; to describe the kinds of programmatic research models within school psychology that can move evidence-based practices towards system-wide policies; and to discuss implications for practice and policy.

**Evidence-based practices: a brief summary of its status in psychology, medicine, and education**

The term “evidence-based practice” (EBP) refers to a body of scientific knowledge, defined usually by reference to research methods or designs, about a range of service practices (e.g., referral, assessment, case management, therapies, or support services) (Hoagwood, Burns, & Weisz, 2002). The knowledge base is usually generated through application of particular inclusion criteria (e.g., type of design, types of outcome assessments) and it generally describes the impact of particular service practices on child, adolescent, or family outcomes. “Evidence-based practice” or EBP is a shorthand term denoting the quality, robustness, or validity of scientific evidence as it is brought to bear on these issues.

Operational criteria were developed in 1998 by the Division of Clinical Psychology of the American Psychological Association, and applied to studies of specific childhood
Two categories of treatments were developed: “Well-established” treatments were required to have two or more studies that demonstrated their superiority to medication, placebo, an alternative treatment, equivalence to an already established treatment, or a single-subject case studies. “Well-established” treatments were consequently identified for Attention-deficit/Hyperactivity Disorder, or ADHD (e.g., behavioral parent training, classroom behavior modification; Pelham, Wheeler, & Chronis, 1998), conduct problems (e.g., parent training Brestan & Eyberg, 1998), and phobias (e.g., participant modeling, reinforced practice Ollendick & King, 1998). The second category, “Probably efficacious” interventions, were required to have two or more studies that demonstrated their superiority to wait-list control, one experiment meeting the criteria for a “well-established” treatment, or three single-case studies. “Probably efficacious” treatments were identified for the treatment of depression (e.g., cognitive behavioral therapy Kaslow & Thompson, 1998), anxiety disorders (e.g., cognitive behavioral therapy Ollendick & King, 1998), along with other treatments related to ADHD, conduct problems, and phobias. Studies of psychosocial interventions for autism, anorexia/bulimia, post-traumatic stress disorder, bipolar disorder, obsessive–compulsive disorder, panic disorder, and substance abuse had not yet met criteria for either of these categories.

This approach came into some controversy because it was seen as an academic exercise with little applicability to real-world concerns facing public mental health providers. Issues such as the co-morbidity of symptoms, the need for flexibility and modularity of treatment approaches, and the inattention to long-term outcomes, among other issues, led to other efforts to develop lists of empirically validated treatments that would reflect scientific, practical, and policy concerns. Chorpita et al. (2002) led a 14-month process in the State of Hawaii to review the science base on psychosocial treatments for youth, but included “effectiveness” criteria in the evaluation, such as impact of the particular therapy on functioning, number of sessions, prime settings for delivery, cultural applicability, and costs. The result of this process has been a major reform of school mental health services in Hawaii, including extensive training of school mental health staff on these treatment approaches and reform of clinical case management strategies to support delivery within school settings (Chorpita et al., 2002).

Another very recent approach will merge the efforts within psychology and medicine to provide a framework for establishing the quality of evidence-based therapies. This effort is being supported by the MacArthur Foundation Group on Evidence-based Treatments for Youth, chaired by John Weisz, and involves an 18-month process to (a) review evidence on psychosocial and psychotropic medications for youth, (b) identify obstacles to implementation of EBT into service systems, and (c) develop a proposed program of research to address the science-practice gap in youth mental health. Primary themes of this research are likely to involve the design and testing of innovative methods for bridging the research-practice gap and for eliminating obstacles to research-informed practice. This process has been undertaken in part to address the absence of a consensus list of scientifically supported treatments, both psychosocial and pharmacological. As a consequence, the project will provide an ongoing review of clinical trial’s evidence, with the purpose of informing the project as to which treatments are best supported and most ready to be tested in practice contexts, including schools. Given the high rate of co-morbidity in
clinical cases, the group will consider strategies for combining multiple evidence-based treatments, in cases where a treated child has multiple diagnoses. One approach that is being considered is to break treatments into modules (e.g., one for each concept taught or skill trained), and then combine the modules from multiple treatments into a modular manual. Using such a manual, therapists could individualize treatment, selecting the combination of modules that best fits each child’s distinctive pattern of problems and disorders. Finally, the MacArthur group will weigh options for decision-making about the use of medication and psychotherapy in combination. Flow charts or algorithms based on the empirical evidence about optimum treatment combinations, and empirically informed cross-disciplinary subgroups of medical and psychosocial specialists will work together to develop decision trees about combined treatments.

A fourth approach to defining the evidence base in child research has arisen from an Interdisciplinary Committee on Evidence-Based Youth Mental Health Care, with formal participation by the American Academy of Pediatrics, The American Academy of Child and Adolescent Psychiatry, and the American Psychological Association’s Divisions of Clinical Child Psychology and School Psychology. This committee has built on the work of APA, but has broadened the inclusion criteria to encompass both psychosocial and pharmacologic treatments that are scientifically supported (Weisz, 2001). A manual has been developed for use by reviewers of outcome research with which to code studies according to highly specified criteria. For treatments to be classified as evidence-based, there must have been at least two between-group design studies with a minimum of 30 subjects across studies representing the same age group and receiving the same treatment for the same target problem, or at least two within-group or single case design studies, with the same parameters, or a combination of the above. Further, the majority of the applicable studies must support the treatment and the protocol must show acceptable adherence to the treatment manual. The ultimate goal of this project is to develop a clinical trial’s data archive for all treatment studies and to periodically update this archive, such that it can provide research syntheses and meta-analyses to summarize treatment research for children and adolescents (Weisz, 2001).

In the field of medicine, the Cochrane Collaborative Group has been the primary standard setter for evidence-based reviews of medical practices. The Cochrane Collaborative has been the foundation for many of the projects for the Agency on Healthcare Research and Quality (Cochrane Collaboration and Health Information Research Unit, 1996). In fact, the popularity of the term “evidence-based” as an adjective in front of “medicine” arose first in the mid-1990s in England, as a result of healthcare reform efforts, and carried over to this country during our healthcare reform. It has spread to psychology, education, and mental health services. An examination by the first author of the usage of the term “evidence-based medicine” in Medline, beginning with the turn of the 20th century and ending with the present, found that from 1900 to 1990 there were no citations that used the term; from 1990 to 1995 there were 76, and from 1995 to 2002 there were 5425! Clearly, interests in the application of evidence-based practices in medicine have never been higher.

Recent efforts specifically directed at the schools have been described by Kratchowill and Stoiber (2000) who discuss the applicability of categories developed by Divisions 17 of APA (the Division of Counseling Psychology) (Wampold, Lichtenberg, & Waehler, in
press) to educational practices: level I: general categories of action (e.g., prevention, psychotherapy); level II: major approaches to level I (e.g., cognitive therapies, group therapy); level III: major approaches applied to specific areas or populations (e.g., cognitive therapy for anxiety disorders, drug prevention programs in schools); and level IV: specific approaches in specific areas for specific populations (e.g., any program for which a specific intervention can be applied in a specific setting taking into account specific characteristics such as cultural variables). Kratchowill and Stoiber (2000) believe this to be a useful schematic and are working with the Divisions of School Psychology, Child Clinical Psychology, and Counseling Psychology to review research evidence for educational interventions applying a modified version of this approach. This exercise is likely to be important for the merging of clinical, preventive, and educational approaches that are used often by school psychologists.

As can be seen, since 1995 a growing number of groups, professional associations, states, foundations, and individuals are jumping on the evidence-based practice bandwagon and providing a variety of views on what constitutes “evidence-based” interventions. In some respects, what may ultimately constitute the major contribution of these efforts will be the photographic negative—the holes, gaps, and absences of knowledge that can shape future research agendas. For example, in a review of close to 300 studies of school-based mental health interventions, Rones and Hoagwood (1999) identified only 47 studies that met scientific standards for providing credible evidence of impact on youth symptoms or functioning. Of these 47 studies, only 2 focused on special education students classified as seriously emotionally disturbed. As children with serious emotional disturbances represent the most severely impaired group of youth in any of the child serving systems (Garland et al., 2001), the fact that there is basically no research base to guide quality mental health practices for this group of youth is a grave deficit in the knowledge base.

In addition to identifying specific deficits in knowledge about intervention practices for subgroups of children, there is also a major knowledge gap in understanding the ways in which research-based findings can best be applied, implemented, and ultimately disseminated in public systems. Questions about the diffusion process and the fit between quality, research-based interventions, and the organizational contexts into which they are to be embedded have direct relevance to the work of school psychologists, who straddle (on a daily basis) issues regarding the fit between the social, emotional, and behavioral needs of students and educational practices. Thus, the opportunities to contribute substantively to answering questions on how best to craft a match among empirically validated mental health interventions and schools as organizational contexts are abundant.

Implementation and dissemination of EBPs into schools: the problem of fit

While the public health goal of developing and applying a robust research base on effective services is laudable and in some respects could be said to represent the pinnacle of a rational society, the ways in which to accomplish this goal are not well-understood. Implementing research-based interventions into public health settings—including schools,
mental health clinics, and primary care—and the ways to cross the chasm between science and practice are poorly researched. In fact, until recently these issues have not been a focus of public health discussions. This is changing, however. Implementation and dissemination or EBPs into service settings are likely to require a two-way adaptation: an adaptation of research design and methods to accommodate practice-related exigencies and an accommodation of practice settings to allow incorporation of EBPs. For schools, which are a key setting in which the research to practice gap can be closed, this is an area in which school psychologists can play a vital role.

One reason that the findings from studies of the efficacy of preventive interventions and more targeted therapies, both of which constitute a significant portion of the evidence-base in children’s mental health, have not been easily transported into schools may be that the theories, methods, and models used to drive the development, refinement, and testing of those interventions do not mesh well with the exigencies of community-based services (Weisz & Weersing, 1999). The typical models used for studying the efficacy of therapies for children, for example, has involved recruiting samples from controlled and somewhat rarefied environments, such as university laboratories, drawing upon theories that largely are derived from previous laboratory studies, and paying slight if any attention to whether or not the intervention is likely to fit within real-world practice contexts. Some of this may be attributable to the need for greater control over confounding variables that occurs in controlled experimental studies of most therapies in its early phases. However, as unmet need for mental health care continues to affect 3/4 of children with mental health problems (NIMH, 2001), and as mental health is increasingly seen as an integral part of public health, it is necessary to adapt, broaden, and refine the research questions about intervention effectiveness, and attend to practice contexts if the findings are to become ultimately useful.

For example, over the past 40 years, well over 1500 controlled clinical trials and within-group studies have been published on the impact and efficacy of psychosocial treatments (Weisz, personal communication, 2002) and specific treatments have been identified for about two dozen clinical conditions in children. Almost all of these studies have been conducted in or in close connection to university laboratories, and most have excluded from the study the range of variables that are likely to need to be understood if the findings are to fit within community settings, such as co-morbidity of symptoms, cultural variations, training of providers, and costs, to name but a few. As has been noted, there are numerous differences between the conditions of most research and the conditions in which everyday treatments are delivered. These differences imply that treatments developed through efficacy trials need adaptation to fit into clinics, schools, or other service settings (Burns, Hoagwood, & Mrazek, 1999; Weisz, Weiss, & Donenberg, 1992). But the differences also imply the opposite: namely that adaptations within service settings or service practices (i.e., where, when, and how they will be delivered and supported) may have to occur to improve delivery of high-quality practices.

A second reason why diffusion of evidence-based practices has not occurred spontaneously is that diffusion constitutes a researchable set of questions on its own. A major objective of most diffusion studies is to determine whether the practice is adopted as intended, or adapted, whether the practice is sustained over time, and what factors influence sustainability (Van de Ven, Polley, Garud, & Ventkataraman, 1999). Diffusion
is only beginning to be studied with reference to either child or adult mental health services. The literature on diffusion cannot yet identify the specific factors most likely to predict adoption and implementation of a particular innovation, such as a specific mental health service. Thus, the evidence base needed to guide the successful implementation and dissemination of effective practices remains to be developed (Schoenwald & Hoagwood, 2001).

Understanding the fit between research-based interventions and service settings is beginning to be studied with reference to features or characteristics of organizations that are likely to influence the delivery of services. Studies of organizational culture, climate, and structure have been undertaken with the field of children’s mental health and the conceptual models for this have been largely derived from business organizational theories. Within the field of educational practices, studies of school organizational climate have also been a major focus of efforts for many years. Yet the ways in which organizational contexts have been conceptualized, measured, and understood in these two fields vary in significant ways. Recognition of these differences is needed if a cumulative science on implementation of EBPs in schools is to be created.

**Organization issues in mental health and education**

*Organizational culture, climate, and structure in children’s mental health*

Most of the studies of the influence of organizational context upon the delivery of children’s mental health services have arisen from the work of Glisson and Hemmelgarn (1998) and Glisson and James (2002), who have applied organizational theory from business practices to human service agencies. Glisson’s work, building on a content analysis has carefully distinguished between organizational climate—i.e., the way persons perceive their work environment—and organizational culture—i.e., the ways things are done in an organizational unit. These definitions delineate a difference between properties at an individual level (i.e., climate is defined as individual perceptions about the environment) and properties at an organizational level (i.e., culture is defined with reference to norms and shared expectations in an organizational unit) (Glisson & James, 2002). A third construct—organizational structure—refers to the formal aspects of an organization and includes elements such as the centralization of power and formalization of roles in an organization (March & Simon, 1958).

Organizational research from Osborne and Gaebler (1992) and Peters and Waterman (1982) has provided evidence that the context within which organizations deliver services influences work attitudes and behaviors that in turn affect the success or failure of an organization. These findings have direct relevance to the delivery of mental health and other human services, and have been a cornerstone of most recent studies within the children’s mental health field.

For example, in a study of the predictors of mental health outcomes for youth served by the child welfare system in Tennessee, Glisson and Hemmelgarn (1998) found that the strongest predictor of improvement in psychosocial outcomes among these high-risk children, over 60% of whom suffered from serious emotional or behavioral problems, was
the organizational climate of the casework agencies. In addition, climate predicted both work attitudes and service quality. In a recent analysis that included both climate and culture within the same set of casework agencies, Glisson and James (2002) found that culture explained the variance in service quality, not climate. The implication is that both of these constructs should be measured especially in studies of public service agencies, as they contribute independently to service-related outcomes.

Other studies of organizational context as it is related to delivery of children’s mental health services are being fielded now, and early results indicate that the organizational climate of mental health agencies directly affects the fidelity with which clinicians adhere to the therapy protocol when delivering multi-systemic therapies (MST) with youth who have serious mental health problems and their families (Schoenwald & Hoagwood, 2001).

This work has direct implications for the implementation of EBPs within a range of service settings, including schools, as it identifies core characteristics of organizational contexts that are likely to influence the uptake, adoption, and sustainability of new practices. The ability to operationalize, assess, and study culture, climate, and structure has provided a new methodology for examining ways to improve the translation of research-based practices into children’s service systems.

Organizational climate in schools

In contrast to the organizational literature on children’s mental health, within the school literature organizational context has focused largely on issues of climate, not culture or structure. There have been two primary ways in which school climate has been conceptualized and measured within education. The first is as a construct referring to perceptions of the school environment, generally provided by teachers or students, although also including at times perceptions of parents and principals. Perceptions of the school climate have focused mostly on psychological aspects of support, collegiality, conflict, or school management issues (e.g., discipline).

The term “school climate” appears to have first been coined by Halpin and Croft (1963) who developed an instrument called the Organizational Climate Descriptive Questionnaire which emphasized teacher and principal behaviors as seen from the teacher’s perspective. Kelley et al. (1986) developed a School Climate Scale that assessed five domains: teacher–student relationships, administrative leadership, security/maintenance, student academic orientation, and parent/community–school relationships. Hoy, Tarter, and Kottkamp (1991) revised the Organizational Climate Descriptive Questionnaire to include supportive principal behaviors, restrictive principal behaviors, and teacher factors of engagement, intimacy, and collegiality. In general, the construct of school climate can be said to refer to perceptions of the physical and psychological school environment by a range of observers, including teachers, students, parents, and principals (Reynolds, 1989).

Studies of the effect of school climate on social, emotional, or behavioral issues in students have been rare, but in general these studies have found that climate does affect self-esteem (Hoge, Smit, & Hanson, 1990); students motivation to learn, and students’ attitudes about aspects of school life. In a recent study by Esposito (1999), assessing the impact of school climate on low income K-2nd grade children’s social and emotional
development, it was found that parental perceptions of school climate, especially teacher–
student relationships, predicted school adjustment. School adjustment included social
skills and academic development in math and reading. Parents’ perceptions of the
teacher–student relationship had an increasingly important relationship to children’s
school adjustment from kindergarten through second grade. In addition, children’s social
skills, as reported by the teacher, were related to school climate as reported by the parents
(Esposito, 1999).

A larger body of work has examined the relationship between climate and achievement
and found that certain characteristics of school climate may affect school achievement:
teachers perceptions of schools as work environments (Moos, 1987); aggregate student
characteristics (Moos & Trickett, 1979), teacher expectations of the students and resources
available in the schools (Entwisle & Hayduk, 1988); and faculty trust (Tarter, Sabo, &
Hoy, 1995).

Finally, a meta-analysis of educational studies examined a range of variables, including
climate, that influence student learning. In an analysis of a database of several hundred
studies, Wang, Jaertel, and Walberg (1997) derived 28 categories of influences on student
learning. When averaged together, school climate and forms of instruction had nearly as
much impact on student learning as student aptitude. Foremost among the variables with
the strongest predictive value was classroom management.

The second way in which schools as organizational contexts have been conceptualized
and measured is through the work of Rutter, Maughan, Mortimore, Ouston, and Smith
(1979). In a unique but highly influential observational study of school “ethos.” Rutter et
al. studied 12 secondary schools in London to ascertain what accounted for differences in
student outcomes among these schools. Among a cohort of approximately 1500 children,
controlling for emotional or behavioral problems at intake, they found that some schools
were able to exert a positive influence on the academic progress of these children and that
it was aspects of the internal organization of schools—i.e., the school ethos—that affected
the primary outcomes of interest (e.g., attendance, behavior, school attainment, and
delinquency). They concluded that differences in student outcomes between schools were
not due to physical factors in the schools, but rather the differences were systemically
related to features of the schools as social–organizational institutions. School ethos
referred to internal features of the schools, especially formal and informal rules or
standards that were applied.

One of the methodological characteristics that made this study unique was that the
authors undertook detailed recordings—time-sampled observations on classroom manage-
ment, teacher style of teaching, and interactional patterns with children. They also made
observations about graffiti, damage, and behavior during recess. They found that the
physical and administrative aspects of schools—intake size, gender proportion, space, age
of buildings, class size—had no effect on outcomes, but features of the internal
organization of schools did affect outcomes. The factors that accounted for differences in
outcomes included degree of academic emphasis, teacher actions in lessons, availability
of incentives and rewards, good conditions for pupils, and the degree to which students
could take responsibility in school. Outcomes were also affected by external factors
outside of the teacher’s control, such as academic balance at intake into the school. This
feature of intake balance was most marked in its influence on delinquency. They
concluded that the association between the combined measure of overall school process and each of the measures of outcome was much stronger than any of the associations with individual process variables. This suggests that the cumulative effect of these various social factors was considerably greater than the effect of any of the individual factors on their own. The implication is that individual actions may combine to create a particular ethos, or set of values, attitudes, and behaviors which will become characteristic of the school as a whole (p. 179).

Taken together, the measurement of school climate as generally described in the educational literature shares some features with organizational context as conceptualized in the child mental health field. In both the notion of climate as reflecting perceptions of the “likeableness” of the work or school environment are similar. The school literature involves a larger group of informants than does the organizational literature, so identifying from whose perspective climate is measured will matter, as discrepancies among informants are not unusual. The school organizational literature in general lacks measurement technologies for assessing the organizational culture of a school—i.e., the normative expectations about behavior, values, and assumptions that shape a school’s context. Nor are issues related to the power structure within schools and within school districts (such as flexibility, discretion, hierarchy of authority, division of labor) typically included as constructs within the school organizational literature.

Models of mental health and school-based services

Beyond the important issues of organizational context and the ways in which understanding of it may facilitate adoption or diffusion of EBPs in schools, several school-based mental health service models have recently been described, and they explicitly address the interface between mental health and education. Because these models are also relevant to issues in bridging the gap between research-based interventions and their implementation, a brief summary of some of them follows.

The School-Based Mental Health Centers at UCLA and at University of Maryland, funded jointly by the Department of Health and Human Services, Health Resources and Services Administration, and Department of Education, have issued a number of papers describing models for re-organizing mental health functions within school contexts. For example, Adelman and Taylor (1998) discuss impediments to provision of mental health in schools and suggest that fragmentation, overspecialization, counterproductive competition, and marginalization contribute to the barriers that students and families face in accessing mental health services. Adelman (1998) also identified three major components to school-based mental health services, which can reduce barriers to student learning and promote psychosocial development. These include direct services and instruction (including crisis intervention, treatment or counseling, student assistance programs, pre-referral interventions, and primary prevention programs); systems, services, and resources (such as needs assessment, referral, triage, case management, monitoring); and connecting schools to community resources (such as creating formal linkages and involving families).

Some models to link schools to mental health services have been experimentally examined. Knoff and Batsch (1995) described an integrative model, Project Achieve, to
link mental health services system-wide. This project included a comprehensive training and service delivery process for all regular education, special education and support staff, and included targeted assessment of academic and behavioral problems, and social skills training. Because it encouraged consistency and collaboration across levels of the school, studies of this model have been able to look at systems-level outcomes. In a quasi-experimental design, the authors found declines in special education referrals, disciplinary referrals, out of school suspensions, and improvements in student achievement in comparison to a demographically matched comparison school \cite{knoff1995}. 

In a special issue devoted to the topic of mental health programming in schools, \cite{nastasi1998} described the principles of service delivery that can guide mental health service delivery by inculcating values of participatory action, collaboration, and comprehensive delivery. \cite{quinn1998} in the same issue argued that the most effective intervention approaches for children with emotional and behavioral disorders—those that are intensive, comprehensive, individualized, and flexibly delivered—are also those that with the most veracity reflect the core values of school psychology as a discipline. They also outlined major service components that are likely to yield school-related best practices, including comprehensive individualized services, stakeholder collaboration, intensive service coordination, and family involvement.

Finally, in the only model thus far that links issues of organizational change to school mental health reform, \cite{mcdougal2000} identified several phases of organizational support within school settings that must occur if change is to succeed: organizational readiness (e.g., support and active participation with administration and staff about the goals of the project; implementation support (e.g., support for training, supervision and monitoring); and support for expansion of the model and its diffusion.

It is clear that the current models for embedding mental health services into school contexts all call for attention to issues of stakeholder engagement (e.g., teachers, parents, administrators, and students); participatory models of collaboration that involve linkages both within and outside of schools themselves; and delivery of comprehensive and individualized services that can best meet the needs of students and their families.

### Developing programmatic research on implementation of evidence-based practices in schools

The focus of the majority of school psychology research in the past two decades has been on issues almost entirely unrelated to the public health framework called for in the Surgeon General’s Reports or, for that matter, the issues raised in this paper. In fact, most of what has passed as school psychology research has been related only to the practice of the discipline itself, not to broader issues related to intervention development, deployment, or improvement of schools as systems. Surveys of attitudes by school psychologists towards school psychological practice have unfortunately typified too much of the so-called contribution to the literature.

The opportunity to undertake examination of policy-relevant, public health questions related to closing the research to practice gap in schools is prime territory for a new breed of school psychological research. This will require shifts in perspective, away from a focus
on testing and assessment, towards a public health goal focused on populations and intervention delivery. It will require shifting away from research models that are crafted only in university laboratories towards development of research questions that are formulated with input from multiple community stakeholders, including families. It will require shifting away from individualistic, one-shot studies, to programmatic research models that attend to broader questions related to delivering high quality services within the unique social–organizational contexts of schools.

Improving implementation of EBPs in schools will necessitate adoption of new models with which to study school services, such that dimensions of typical school practice are assessed and better understood, as improvements in educational and mental health practices are implemented. Weisz and Weersing (1999) have argued for the creation of new research models that from the start—in the initial piloting and manualization phase—attend to “nuisance” characteristics of the practice setting (e.g., practitioner behaviors, organizational variables, neighborhood characteristics, etc.). This deployment focused model is designed to accelerate the pace at which the science base for mental health services can be developed, adapted, refined, and taken to scale in a variety of practice settings or communities. The model outlines a series of eight steps that begin and end with the practice setting where the service will ultimately be delivered. The scientific phases for developing treatments or services for children’s mental health problems—from manual development to wide-scale dissemination—are described, with the goal of ensuring that the end product—a scientifically valid treatment or service—will be grounded, useable, and relevant to the practice context for which it is ultimately intended (Hoagwood et al., 2002).

In addition, the new report of the National Institute of Mental Health’s Advisory Council, entitled Blueprint for Change: Research on Child and Adolescent Mental Health (NIMH, 2001) describes a new cyclic model of treatment development that attends to service delivery issues at the outset. The report argues that attention to these contextual variables is necessary for the ultimate adoption of the intervention. These new approaches to developing programmatic and cumulative knowledge about effective interventions are extremely challenging, and require engagement of stakeholders early and throughout the process of research implementation; yet they are likely to yield useful and useable knowledge for improving public health.

Applying these models to school psychology research, for example, would imply that studies of the implementation and organizational fit of mental health practices within schools attend to unique dimensions in the interface between research-based practices and school settings, such as (a) characteristics of the practitioners (e.g., counselors, teachers, psychologists who are delivering the intervention including their clinical training, support, and monitoring; (b) characteristics of the student population (e.g., homogeneity or heterogeneity of psychological syndromes, impairments, cultural variations, attributions towards or about mental health, etc.); (c) service delivery characteristics (e.g., setting, types of services available beyond the intervention); (d) the organizational ethos (e.g., the culture, climate or structure and their influence on motivation, attitudes, and morale of teachers, students, counselors, or other school staff); and, (e) characteristics of the service system (e.g., referral and reimbursement mechanisms, inter-agency relations).
In addition, if the goal of sustaining best practices in schools is to be achieved, then a more refined understanding of the core social—organizational variables that influence the delivery and the sustainability of high quality interventions is needed. For example, identification of key structural features of school systems, especially those related to the schools’ capacity to support programs aimed at alleviating the social, emotional or behavioral problems of students, may yield an organizational typology of service variations, against which to assess the capacity of schools to sustain comprehensive interventions for children and adolescents with mental health needs.

Elements of school organization that may be relevant to this fit might include:

- **Local policies**: (a) the formality or informality of pre-referral teams; (b) availability of school mental health personnel (e.g., school psychologists, counselors); (c) how the IDEA legislation is implemented, including the social maladjustment exclusion (e.g., some school districts routinely eliminate students with conduct disorders, while other districts establish separate categories for youth with behavior problems); (d) methods and tools used for assessing students; (e) the intake process (who does it—school psychologist, intake worker, behavior management specialist); (f) levels of parent involvement (IEP only; parents on school consultation team; parents as advisors); and (g) individualizing/tailoring of treatments/services for particular child/family

- **School-wide administrative data**: disciplinary data related to incidents/suspensions/expulsions, school overall academic achievement, pass–fail rates, number of children referred or treated for MH care, IEPs, level of parent-involvement

- **Staffing**: mental health providers’ training, level of knowledge, teacher–pupil ratios, number/ratio of children meeting ED criteria; number of special education staff, special education staffing levels; training/certification of special education staff (e.g., traditional vs. alternative certification credentials)

- **Financing**: the types of financing available for school mental health services (how paid for, by whom, Medicaid funds used)

- **Coordination**: (a) the relationship of the regular education to the special education system (one referral team; separate systems within the school; administered at the district level, county level); (b) the relationship of special education to local community resources, agencies, and mental health services outside the school (e.g., how linked, by whom, what is follow-up after referral); (c) the location for delivery of mental health associated service (on site in school, by referral off-site); (d) availability of a case manager to coordinate and link school and mental health resources; (e) the extent to which special education designations, such as Learning Disabilities or Speech/Language problems, are gate-keeping categories of first resort for students with mental health problems; (f) availability of referral networks.

Finally, factors that predict successful dissemination of EBP in schools may overlap with those that predict effective educational or mental health services, may be identical to them, or may be of a different order altogether. For example, organizational climate has been found to be a strong predictor of psychosocial outcomes among children receiving casework services in a child welfare agency, and it appears to exert its influence via casework therapists’ motivational attitudes towards their work (Glisson &
Is organizational climate an important ingredient of uptake and dissemination within school districts or communities? This is not yet known. If climate is associated with interpersonal variables that predict the adoption of innovation, then manipulation of climate will be important to eventual implementation of EBP. But if the variables that predict uptake are more closely related to systemic or intrapersonal dimensions, then climate may not be the active agent for implementation (Schoenwald & Hoagwood, 2001).

As the Surgeon General’s National Action Agenda for Children’s Mental Health (2000) demonstrated, schools are essential gatekeepers for the promotion of high quality mental health practices for the broad population of children with mental health needs. School Psychology is in a key position to establish a strong, cumulative science base on how to embed and sustain high quality interventions into its front-line service system; to exert leadership on questions of national policy relevance; and to contribute substantively and consistently to the national dialogue.

Implications for practice and policy in school psychology

It is the unique ecosystems of individual schools, districts, and communities that challenge the fidelity and sustainability of empirically supported practices through authentication of content to context fit. A presupposition of evidence-based practices is that levels of agreement can emerge across communities and schools about not only what constitutes quality mental health and educational practices, but also about the mix of methods that can most powerfully model implementation processes and outcomes. This assumption places powerful demands upon trainers of practitioners.

The historical roots of school psychology from a clinical child tradition to its current emphasis on educational testing and consultation at the levels of individual children or individual teachers do not map neatly onto the new models being proposed in this and the other papers in this issue. The newer models emphasize a focus on populations and on public health priorities. The implications of such a shift are that training in a variety of methods, both quantitative and qualitative, will be needed. The value of mixed methods and embedded but rigorous case study methodologies to elucidate the processes of implementation will be needed.

In the area of practitioner training, the need for interdisciplinary or transdisciplinary graduate studies, coupled with ongoing professional development, has been emphasized in recent years (Nastasi, 1998; Schensul, 1998) as a way to enhance the competencies of school-based professionals. What this means for trainers of school psychologists is a broadening and deepening of the academic and socio-cultural landscape to include knowledge from the basic neurosciences and behavioral sciences, as well as recognition of the powerful historical and cultural values that shape and re-shape the meaning of the processes that are being studied (Fisher & Hoagwood et al., 2002).

Within the infrastructure of schools, overvaluing or undervaluing any set of expertise can limit an already limited system. The Center for Disease Control defined the parameters of eight separate school-based components involved in health care delivery, categorizing school psychologists, school counselors, and school social workers under a generalist
umbrella, with the goal of outlining how staff from all of the eight school components can work to achieve comprehensive service delivery (Kolbe, Collins, & Cortese, 1997).

Recognition of commonalities among school-based personnel has led some to question the necessity of a “specialist” approach to improve school-related problems that stem from common social factors (Adelman & Taylor, 1998; Doll, 1999; Knoff, 1996). Data-based decision-making to improve direct service provision is not new to applied psychology, but communal (i.e., shared) and innovative methods (e.g., multi-method, multi-component) that yield meaningful as well as measurable results are likely to deepen understanding of the processes by which practices can be improved. Fundamental beliefs about “ways of knowing” (scientific, objective vs. intuitive, subjective) may collide, especially when evidence-based practices have relied upon narrowly defined outcomes, trivial questions, or irrelevant methods. The complex social–cultural and ecological systems in which school-aged children and their families are embedded demand genuine exploration and integration of different worlds of knowledge (including, but not limited to consumer-driven outcomes; nontraditional, folk-culture approaches to problems; and strength-building). How scientist–practitioners permeate these boundaries while safeguarding methodological rigor will inform not only the field of school psychology but contribute to the evolution of applied behavioral science as a whole.

References


