

Current and Future Challenges in School-Based Prevention: The Researcher Perspective¹

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During the next decade we will see broad dissemination of a growing number of empirically validated school-based prevention programs. The processes of effectiveness research, broad program diffusion, and program integration at the school and community level will become a central focus of research activity. The paper presents six future directions for research in the field of school-based prevention and health promotion. The directions include developing new programs and models, developing standards and accountability systems related to school success, moving from efficacy to effectiveness research, understanding factors influencing program integration, broad dissemination of programs and policies, and the sustainability of programs, policies, and community partnerships. These future directions are driven by three significant research-to-service challenges faced both by practitioners and researchers that involve systems integration across developmental stages, levels of care, and institutional structures.

KEY WORDS: prevention; schools; dissemination; implementation; sustainability.

INTRODUCTION

There have been exciting advances in school-based prevention in recent years. Yet these advances, themselves, raise new issues in improving program effectiveness and developing effective model for implementation, diffusion, and sustainability. It is timely that the National Institute of Drug Abuse has held this meeting which is focused on how to better integrate prevention research with the needs of schools. During the last decade there have been significant developments in school-based prevention, including increases in the number and breadth of evidence-based programs (Gottfredson & Wilson, 2003; Greenberg *et al.*, 2001), a growing literature on implementation

of evidence-based models (Dane & Schneider, 1998), and the development of community-school models for effective diffusion of prevention (Hawkins *et al.*, 2002; Spoth *et al.*, 2004).

As effective programs and policies undergo the challenge of translation from science to widespread practice, there is a need for greater integration with schools and communities to build processes and structures that will insure high-quality implementation and promote sustainability. There is little question that further advances in the development and application of effective prevention practices and policies with schools and communities will require a much greater degree of collaboration in which researchers learn from educators and vice versa. A central part of this collaboration includes greater attention to the important role that prevention programs and policies can play in both increasing academic performance and improving the quality of life of communities. In this paper, I discuss six future directions for the field of school-based prevention research. To do so, I first briefly review current accomplishments in prevention research and then introduce three significant research-to-service challenges faced both by practitioners and researchers.

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What Has Been Accomplished in the Past Two Decades?

The past two decades has brought clear progress and a stronger empirical base to the field of school-based substance abuse prevention and the broader field of social and emotional learning (Greenberg *et al.*, 2003). There are now a considerable number of empirically validated (EV) classroom and family-based curricula that have been shown to reduce substance use and its associated risk factors. Reviews and meta-analyses of the prevention of substance abuse (Blitz *et al.*, 2002; Gottfredson & Wilson, 2003; Lochman & van-den-Steenhoven, 2002; U.S. Department of Health and Human Services, 2003; Tobler *et al.*, 2000), violence and antisocial behavior (Wilson *et al.*, 2001, Elliott-Blueprints), mental health (Durlak & Wells, 1997; Greenberg *et al.*, 2001), and positive youth development (Catalano *et al.*, 2002) have shown that both universal and targeted prevention programs can substantially reduce the rate of problem behaviors and symptoms, as well as build protective factors that reduce further risk in child and adolescent populations.

Much of the progress has been due to the adoption of the public health model and the advent of prevention science as applied to these fields (Biglan *et al.*, 2003; Coie *et al.*, 1993; Mrazek & Haggerty, 1994; U.S. Department of Health and Human Services, 2003). This has included the analysis of longitudinal data to understand both the risk and protective factors related to later maladaptive outcomes as well as the multiple pathways and stages of development of these adolescent problem behaviors (Collins & Sayer, 2001; Loeber & Farrington, 2000; Moffitt *et al.*, 2002). Further, there has been substantial attention to methodology with attendant improvements in study design and analysis (HLM models, etc.). In addition, program developers have created carefully manualized, replicable models of intervention. The use of randomized clinical trials (RCT) has been crucial to legitimizing prevention efforts by creating greater accountability for outcomes. However, few programs yet have evidence of independent replication or effectiveness of use with diverse populations (eg., minority or rural populations).

The growth of evidence in the field has been paralleled by a substantial change in policy legislation at both the federal and state levels. Two dramatic examples are the Safe and Drug Free Schools Act of 1999 which stated “principles of effectiveness,” and the No Child Left Behind Act of 2001 that calls for school

districts to implement evidence-based programming (Hallfors & Godette, 2002). Further, numerous state and federal agencies have created grant programs for communities that restrict funds to the use of EV programs (e.g., Substance Abuse and Mental Health Administration, Center for Disease Control). Numerous best-practice guidelines have been published at the federal and state level (Maryland Governor’s Office on Crime Control and Prevention, 2003), although somewhat different, and sometimes confusing, criteria have been used for the selection of “model” or “effective” programs across reviews and federal agencies (Collaborative for Academic, Social, and Emotional Learning, 2003; Substance Abuse and Mental Health Administration, 2003; U.S. Department of Education, 2002; U.S. Department of Health and Human Services, 1999, 2003).

The Prevention Challenge: Systems Integration

During the next decade prevention initiatives face a number of significant new challenges that signal the next stage of the linkage between prevention science, policy, and practice. These challenges focus on the need to better integrate universal prevention programming along three dimensions: stages/grades, levels of care, and community institutions.

Systems Integration Across Developmental Stages

As a result of federal and state legislation, U.S. schools are rapidly altering their organization and striving to develop broader and more comprehensive models of reform that utilize clear goals, standards, and benchmarks for outcomes (Education Commission of the States, 2001; Togerni & Anderson, 2003). As EV programs have accumulated and schools have begun adopting these programs at increasing rates (Ringwalt *et al.*, 2002), schools are now searching for integrated models with a clear scope and sequence from pre-Kindergarten through Grade 12 (Collaborative for Academic, Social, and Emotional Learning, 2003; Elias *et al.*, 1997). At present the field of prevention science has primarily assessed isolated programs that span relatively small parts of this entire age span. As this process of school reform grows, researchers and practitioners will need to work together to develop K-12 guidelines and to consider how all the elements of evidence-based programs and policies fit together in the context of an overall

schoolwide or school-district effort, how they increase student school success, and how to ensure that coordinated, multiyear programs will be implemented effectively (Adelman & Taylor, 2000; Osher *et al.*, 2002). This will require not only integrating program models across developmental periods, it will also require that researchers and practitioners engage together in developing long-term curricular planning, ensuring adequate local infrastructure to support prevention activities, teacher training and technical assistance, and appropriate evaluation of process and outcome (Greenberg *et al.*, 2003).

Systems Integration Across Levels of Care

It is a rare school-community system that has developed integrated programming between universal, classroom programs and either indicated prevention (e.g., counselor led programs with students who are experiencing divorce, bereavement, or other trauma), targeted services (for children identified as having aggression, peer problems, prodromal signs of depression, etc.), or treatment. This is in part because of the fragmented nature of the models created by curriculum developers and researchers as well as the often fragmented planning between schools, government agencies, and the private sector of human services. One exception is the Fast Track program, which intentionally and systematically attempts to integrate levels of prevention (Conduct Problems Prevention Research Group, 1992, 2000). Thus, a second challenge is to create models that integrate curriculum training and technical assistance across levels of prevention and treatment services (Adelman & Taylor, 2000).

Systematic Integration Across Institutional Structures

A related practice challenge is to develop models that integrate prevention programming across the institutional structures of schools, community agencies (e.g., mental health, substance abuse, family services), hospitals, and youth development organizations (e.g., cooperative extension, afterschool programming, youth service agencies). Most communities have a tangle of fragmented and often duplicative services with little coordination. Children and families are often served by multiple sources, yet there is little dialogue between these entities. Thus, treatment providers from community agencies providing indi-

vidual counseling to children are commonly unaware of the prevention focused goals in the classroom and do not “recruit” or generalize the skills learned by the child to the treatment context.

Integrating prevention programming across developmental levels, levels of care, and institutional settings provide major services research challenges that will dramatically alter the nature of the research-practitioner agenda and require new models of communication and collaboration across these disciplines. To create coordinated planning and action across institutional structures and levels of care will require greater integration between community agencies and schools. To encourage these actions will require substantial policy changes at the local, state, and federal level (New Freedom Commission on Mental Health, 2003). These challenges lead to six future directions for prevention research.

Future Directions for Prevention Research

Although there have been substantial accomplishments in both prevention research as well as in its impact on federal and state policy, the three science-to-practice challenges discussed above lead to six future directions for school-based prevention research.

Development of New Programs and Models

Although prevention programs have shown significant effects on a variety of outcomes, effect sizes are often small to moderate, and there is need for more effective and refined programs (Gottfredson & Wilson, 2003; Durlak & Wells, 1997). These projects will require rigorous RCT designs with appropriate comparison groups. However, in most cases it is not appropriate to label these as “control” groups, as most children in the United States receive some kind of curricular or school-wide interventions to improve behavior and reduce problems (Ennett *et al.*, 2003; Gottfredson & Gottfredson, 2001; Hallfors & Godette, 2002). Given that there are no “true control” groups, it is critical for trials to carefully study the experiences and interventions received by the comparison group. Further, it will be important to compare the efficacy of new models to existing EV programs, not just to “current practices” to assess their value-added.

In addition to using RCT designs, greater work is needed on improved statistical methodology for quasi-experimental designs. For example, given that

schools are becoming more reluctant to have children placed in “no treatment” comparison groups and that schools often want to initiate programs grade or district-wide, analyses that utilize the most recent cohort of students from the same building or that phase the program in overtime may lead to more viable design models for collaboration and evaluation, but may require new models of statistical control and estimation.

Develop Standards and Accountability Systems Related to School Success

There is a need for the development of valid and reliable assessments of social, emotional, ethical, and health outcomes that can easily be utilized by schools as part of their accountability process. Schools are now faced with multiple competing demands and educational leaders are faced with difficult choices about priorities (Adelman & Taylor, 2000; Berends *et al.*, 2002; Hall & Hord, 2001). Currently educational leaders are singularly focused on the student academic performance requirements of the No Child Left Behind Act. Following the dictum that “what gets inspected gets expected,” many schools have increased the time they devote to instruction in these “inspected” areas while reducing time for “non-assessed programming.”

There are a number of strategic policy-related issues here. One strategy to counteracting the limitations of an exclusive focus on academic performance will involve designing and evaluating new programs and policies that simultaneously improve students’ health, social-emotional, and academic outcomes (Zins *et al.*, in press). In addition, researchers must collect data on academic achievement and other indices of school success to better understand the full impact of prevention activities on domains that influence program adoption decisions and sustainability.

There also is a need to develop a meaningful and easily understood set of school-wide assessments of the social and emotional competence of students as well as the climate of schools. Such measures could be used as a visible “report card” on a particular school that could be used both for planning as well as to educate the public on aspects of a school’s success or needs, in addition to its academic test scores. For example, assessment of children’s bonding to school is an important predictor of adolescent substance abuse and delinquency, as well as school success (Hawkins *et al.*, 2001). Such a “report card” should

focus on problem behaviors (aggression/bullying, substance use), protective factors (e.g., children’s bonding to school), as well as school climate from the view of peers and staff.

Moving from Efficacy to Effectiveness

As more programs have shown efficacy in controlled trials, a next stage in prevention programming is moving to studies of effectiveness (Mrazek & Haggerty, 1994). There are numerous research questions to be addressed in studying effectiveness. A central question is how effective are EV programs under “real-world conditions.” Such studies will require the use of some kind of comparison group (i.e., using either randomized or quasi-experimental groups). However, other questions regarding effectiveness do not require comparison groups and are best done under less controlled conditions in which local circumstances vary. A most important question to address is what factors influence the quality of implementation; in such studies, implementation quality itself is the outcome. Recent reviews of the implementation literature (Dane & Schnieder, 1998; Domitrovich & Greenberg, 2000; Durlak, 1998) indicate the absence of significant attention to this issue and consequently the necessity of developing both conceptual models and an empirical “science of implementation” (Greenberg *et al.*, in press). Research should focus on a variety of factors including the curriculum model and the implementation support system, as well as nonprogram factors involving characteristics of teachers, students, and policies and regulations of school and governmental bodies. A recent community-based study highlighted the interactive influences of both high quality implementation by teachers and level of principal leadership in influencing aggressive behavior in elementary aged children (Kam *et al.*, 2003).

A central issue in studying effectiveness of programs is studying the nature of local adaptation. It is likely that all models will undergo some change as they are used over a period of years in the same setting. Further, it is likely that some of these changes might be considered positive adaptations such as adapting materials for local needs, adding components to enhance comprehensiveness, and curriculum integration with other academic subjects, while maintaining fidelity in both training and delivery of the critical elements of the model. Other adaptations will likely lead to decrements in outcomes for example,

shortening of training, omission of critical elements, lack of generalization across the school context and with families. Thus, the polarizing debate regarding fidelity versus adaptation (Weissberg & Greenberg, 1998) can be more effectively recast as focusing on the quality and nature of adaptations. It is clear that program developers, researchers, and educators have much to learn from studying these unavoidable adaptations in the classroom.

Although some aspects of implementation research can be conducted by studying natural variation in dissemination of EV programs, it also will be necessary to conduct experimental trials in which aspects of implementation are varied, such as training characteristics or level of technical assistance. Finally, it will be important to understand how prevention programs articulate over multiple years and across developmental and school-triggered transitions and how schools alter programs to meet these local needs.

Understanding Broad Dissemination—"Going to Scale"

A related, but larger challenge than studying preventive intervention under "real-world" conditions is conducting research on the process of "going to scale." The broad dissemination of EV programs is just beginning and there is little experimental and naturalistic or case study research to guide such efforts (Backer, 2000, 2001; Elias, 1997). One exception is the report on the diffusion of the Life Skills Training (Fagan & Mihalic, 2003), which indicated that it is possible for programs to be disseminated with fidelity, given a certain level of local commitment and technical assistance.

There are clear challenges in the process of going to scale that relate to the nature of the programs, their models of marketing and dissemination (Rotheram-Borus & Duan, 2003), as well as the readiness, knowledge, and planned effort of local schools. A first, regulatory step in facilitating broad dissemination was the development of federal guidelines for the local implementation of evidence-based programs by the Safe And Drug Free Schools. Yet, a series of national studies indicate the substantial obstacles that require further understanding to improve implementation quality in the process of broad dissemination (Gottfredson & Gottfredson, 2002; Hallfors & Godette, 2002; Ringwalt *et al.*, 2002, 2003). At present many American schools are either not using EV programs or are using them with low levels of fidelity.

Many of the same "services research" questions described above regarding effectiveness also apply to studies of broad dissemination; how does variation in implementation affect student outcomes?; what factors influence the quality of implementation?; how do varying models of training and TA affect implementation?; and what kinds of information systems help to effectively inform practitioners and guide implementation?

Program Integration With Ongoing School and Community Programs and Activities

A central research question that crosses both effectiveness and broad dissemination studies is what factors influence the success with which specific EV prevention programs and policies are integrated with the ongoing activities and program delivery systems in schools and communities. It is unlikely that most attempts at implementing programs will survive unless there is long-term planning and adjustment of the program model to become integrated with other programming already ongoing in schools (Adelman & Taylor, 1997). This is not likely to occur in the first implementation in a system both because there is often insufficient planning, but also because systems are often unwilling to make a long-term commitment to a program without piloting it and understanding how it will affect other aspects of curriculum and programming.

The Safe Schools/Healthy Students (SSHS) grant program is an interesting example of this trend. Funded jointly by three federal agencies (Center for Mental Health Services/SAMHSA, Department of Education, Office of Juvenile Justice and Delinquency Prevention), the goal is for local communities to develop integrated programming that involves prevention, treatment, and school reform efforts from K to 12th grade. Although there is as yet no research on this model, over 140 communities have been funded and such large federal programs can provide necessary data to examine effectiveness, diffusion, and program integration. Models such as SSHS should also inform the field about the possibility of value-added outcomes that may occur by combining and integrating different EV models in the culture of schools.

A second level of program integration is also possible through the use of community collaborations that provide both a community planning function as well as organizational structure for the coordination of prevention programs between schools, community

agencies, youth-serving community groups, and governmental bodies. A leading example of this type of organizational model is Communities That Care (Hawkins *et al.*, 2002; Hawkins & Catalano, 1992). In this model, community leaders are taken through a series of phases starting at developing readiness and proceeding to board formation. Communities are educated in the public health model of risk and protective factors, how to interpret the assessment of these factors, and how to link the choice of EV prevention models to those risk assessments. After these phases are completed communities then begin to implement prevention programs and use ongoing assessment and CTC board planning to create program integration and make further prevention program decisions. Although the CTC model has not yet been tested in a randomized trial, research studying 21 communities in Pennsylvania has identified characteristics that predict better board functioning and sustainability (Feinberg *et al.*, in press, 2002; Gomez *et al.*, 2003).

A more delimited model of community organization and planning for coordinated prevention programming, PROSPER (Promoting School-Community-University Partnerships to Promote Resilience), is now being tested in a randomized trial in Iowa and Pennsylvania (Spath *et al.*, 2004). The goal of PROSPER is to link the Cooperative Extension system (administered through land-grant universities) and local school districts through the creation of local partnership teams that provide the planning and structure for the implementation of evidence-based programs. Technical assistance to these teams on prevention research and programming is provided by both prevention researchers and university-based Cooperative Extension faculty. A goal of PROSPER is to utilize sustainable systems (Cooperative Extension and Public Schools) to create sustainable prevention programming in communities.

The study of community-school-government partnerships presents exciting opportunities and there is an extensive, primarily anecdotal “wisdom literature” on the operation of such collaboratives. However, substantial research questions remain regarding ways to develop effective community-school partnership systems for coordination of EV programming (Wandersman & Florin, 2003). For example, what factors in management, organization, financing, training, and technical assistance lead to effective partnership functioning? Second, does effective internal partnership functioning predict the quality of implementation of EV programs? Third, what are the optimal ways to build a larger infrastructure—a dif-

fusion network focused on creating systems change for evidence-based prevention? Finally, what factors influence sustainability of such local systems?

Sustainability

A significant challenge to effective prevention programming is to sustain this programming over time. Only by providing effective services to multiple cohorts of children and youth will communities begin to see change in the rates of problem behaviors. The challenge of sustainability as well as the previous challenge of program integration truly requires a change in approach and philosophy from previous research paradigms. Instead of researchers approaching schools to get their permission to test the effectiveness of new programs, they will be required to collaborate with schools to understand what supports and structures are necessary to create sustainable change in school prevention programming. Such a change will be dramatic for many researchers and truly lead to a more mature integration of the prevention science and community collaborative perspectives (Weissberg & Greenberg, 1998). In a series of insightful critiques, Elias and colleagues (Elias, 1994; Elias *et al.*, in press) have elaborated the need for a new model of action researcher that is both a “participant conceptualizer and praxis explicator.”

The study of sustainability will bring new research and policy challenges and opportunities as well as a need for well-validated practical tools to assist schools and communities in moving programs to a sustainable basis (Johnson *et al.*, in press). Research questions will include what factors influence the sustainability of EV programming in schools and communities? Do effective outcomes for youth or families influence sustainability? How can local groups use data effectively to influence sustainability? Is there a relation between quality of program implementation and sustainability? What factors in management, motivation, organization, financing, training, and technical assistance lead to sustainability for both programs as well as community partnership functioning? What types of diffusion networks and TA most effectively support sustainability? How do changes in policy lead to alterations in management, coordination, and financing for sustainability?

To conduct such research will require multiple methodologies. This will include naturalistic/descriptive studies of the longer-term outcome of evidence-based programs and partnerships in

communities, as well as experimental trials that are very important features of systems development, policy, management, training, financing, etc.

CONCLUSION

During the next decade we will see broad dissemination of a growing number of EV school-based prevention programs. The processes of effectiveness research, broad program diffusion, and program integration at the school and community level will become a central focus of research activity.

To accomplish the goals of understanding what factors will lead to effective programming and sustainability, prevention researchers will need to develop a new level of collaboration and partnership with educational leaders to better understand their views and goals. This will require a more differentiated understanding of the perspective of educators as well as the influence of the national and local policy context for educational leaders. Addressing these challenges in school-based prevention research will improve the effectiveness and sustainability of prevention programming and ultimately improve outcome for schools and students.

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