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Issues in Disseminating and Replicating Effective Prevention Programs

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The new frontier for prevention research involves building a scientific knowledge base on how to disseminate and implement effective prevention programs with fidelity. Toward this end, a brief overview of findings from the *Blueprints for Violence Prevention-Replication Initiative* is presented, identifying factors that enhance or impede a successful implementation of these programs. Findings are organized around five implementation tasks: site selection, training, technical assistance, fidelity, and sustainability. Overall, careful attention to each of these tasks, together with an independent monitoring of fidelity, produced a successful implementation with high fidelity and sustainability. A discussion of how these findings inform the present local adaptation-fidelity debate follows.

KEY WORDS: dissemination; replication; fidelity; prevention; implementation.

INTRODUCTION

The new frontier in violence, substance abuse and delinquency prevention, and intervention research involves building a scientific knowledge base for the replication and dissemination of those programs that have been demonstrated to be effective. Although there is substantial and cumulating evidence for the efficacy and effectiveness of a number of these types of programs,³ there is relatively little research on the “process” of implementing programs and how to replicate, and disseminate them with fidelity on a scale that will impact local, state, or national rates of violence, substance abuse, and delinquency (CSAP, 2001; Greenberg *et al.*, 2001; Mihalic & Irwin, 2003). Taking good programs to scale is one obvious strategy

for achieving this goal, but the promise of preventing violence, drug use, and delinquency will never be realized if we do not learn how to effectively disseminate and replicate these programs in a manner that is true to the original design. To date, few of the programs identified as model or exemplary programs have been successfully implemented on a wide scale.

This paper reports the findings from a major dissemination and replication project—*The Blueprints for Violence Prevention—Replication Initiative*. The Blueprints project was initiated in the State of Colorado by the Center for the Study and Prevention of Violence at the University of Colorado. It began as an effort to identify model violence and drug prevention programs meeting a high standard for program selection. The standard includes a strong research design with evidence of a deterrent effect on violence, delinquency, or substance abuse; sustained effects at least one year beyond treatment; and replication with demonstrated effects at more than one site. Soon after the initiation of Blueprints, the Office of Juvenile Justice and Delinquency Prevention became an active supporter of the project and provided funding to Blueprints to sponsor program replications in sites across the United States. As a result, Blueprints has evolved into a large-scale prevention initiative, in both identifying model programs and providing

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A1 ³See Mihalic and Altman-Bettridge, 2004, for a summary and review of various lists of effective violence, substance abuse, and delinquency programs. Throughout this paper, we will use “program” to refer specifically to violence, substance abuse, and delinquency prevention programs.

technical support to help sites choose and implement programs with a high degree of integrity.

This initiative involved a national dissemination and replication of Blueprint Model programs, with violence prevention programs implemented at 42 sites and Life Skills Training (LST), a drug prevention program, implemented at 105 sites involving approximately 430 middle schools.⁴ The goals of the initiative were (1) to initiate a national dissemination of Blueprint Model Programs, (2) to provide training and technical assistance to transfer required program knowledge and skills to local implementers, (3) to monitor the technical assistance and training provided to local implementers by program developers and provide feedback to sites on fidelity problems, and (4) to disseminate knowledge on factors that enhance or impede fidelity and contribute to the sustainability of programs. The objective of this paper is to provide a brief overview of the findings from this study and to address in more detail how these findings inform the adaptation-fidelity debate and the argument for a negotiated “balance” between fidelity and local adaptation.

Overview of Findings From the Blueprint Replication Initiative

Findings are organized around five replication tasks: site selection, training, technical assistance, implementation fidelity, and sustainability. It should be noted that the Blueprint programs varied considerably in their organizational capacity to deliver their programs, even on a modest scale. The fact that these programs had completed the necessary efficacy and effectiveness trials and met the rigorous evaluation standards required for certification as Blueprint programs did not necessarily prepare them to deliver these programs on a wide scale. Only four of the 10 programs had the organizational capacity to deliver their programs to 10 or more sites a year. Developing the organizational capacity to effectively deliver programs—published materials, a pool of certified trainers, technical assistance, tested process evaluation measures, a well designed marketing and delivery capability, and a data management system—is a major task and we have much to learn about how to do this effectively. Although we have taken giant

⁴Because of space limitations, the findings are only highlighted here. Readers are encouraged to read the full reports on this initiative. See Mihalic *et al.* (2002), Fagan and Mihalic (2003), and Mihalic and Irwin (2003).

strides forward in determining “what works” and promoting the use of science-based programs, we have lagged behind in building the internal capacity of designers to deliver their programs. To move forward with a national prevention initiative, this gap must be addressed by funders and policymakers.

Site Selection

Most replication failures can be traced to limited site capacity, inadequate site preparation, or readiness. It was rare to find a site that applied for a replication of a model program in their communities or schools that had developed the necessary commitments, resources, and organizational capacity to successfully mount this effort. Through telephone consultations and feasibility visits, we worked with many of these sites⁵ up front to build their capacity to initiate a program, often taking 6–9 months. Capacity-building efforts then continued throughout the implementation process. The critical elements in site readiness that were related to a successful implementation were: (1) a well connected and respected local champion, (2) strong administrative support, (3) formal organizational commitments and organizational/staffing stability, (4) up front commitment of necessary resources, (5) program credibility within the community, and (6) some potential for program routinization, that is, the program being sustained by the existing operational budget of the school or community.

The finding that most sites are initially unprepared to implement and sustain programs with fidelity presents a major obstacle to taking model programs to scale. Some commitment to developing site capacity must become a routine part of any implementation initiative and the expected time frame for successfully implementing programs must be extended to allow for developing site readiness.

Training

In general, local implementers rated the quality of training provided by the Blueprint Program

⁵Sites applied directly to the Center for the Study and Prevention of Violence (CSPV) for inclusion in the national dissemination initiative, and CSPV selections were approved by the Office of Juvenile Justice and Delinquency Prevention. Because the objective was to facilitate a successful dissemination, site visits were made to each potential site to determine readiness before granting funds to that site.

Developers as very good (4.3 on a 5-point scale). They were a little less enthusiastic about how well the training prepared them to implement the program (3.7). They cited a lack of time working with the model as the major barrier to feeling more confident about implementing it. For local implementers, the most useful components of the training were the use of videos, role plays, hands-on exercises, and practice.

The most serious training challenges were absenteeism and a high rate of local staff turnover in both school-based and community-based programs. Although sites were made aware during the feasibility and planning stage of their responsibility in ensuring that all staff were trained, and the grant had included in the budget funds to provide a greater range of services for sites that experienced such problems, the issues around rescheduling training sessions, recruiting additional staff, providing coverage when staff turnover occurred were still problematic at the site level. Although one of the Blueprints grants covered the cost of substitute teachers, another did not, and these schools were informed that they were responsible for all operational costs. A few schools had difficulty garnering the money for this expense, but for most schools this requirement was not an issue. A bigger issue was actually finding enough substitutes to release a large number of teachers at one time. The evaluation of the training delivered resulted in the following recommendations: (1) be firm regarding the formal eligibility requirements for program staff (required skills, formal training, and education), (2) hire all staff before scheduling training, (3) conduct a general orientation of the program with staff before training, (4) encourage administrators to attend training, (5) plan and budget for staff turnover, and (6) be ready to implement the program immediately after training.

Technical Assistance (TA)

Local implementers evaluated the content and quality of the technical assistance delivered by the program developers. Over a 2 year period, there was considerable variation in the quality of TA delivered by specific programs as judged by implementing staff. In general, the quality of TA was evaluated highest early in the implementation, but tended to decline over time. Among some programs, there was little proactive delivery—developers tended to wait until they were notified of problems before providing help to sites. That, coupled with the fact that TA

providers were sometimes hard to reach and slow to answer questions, led to the delay of fully implementing the programs at several sites. These types of problems seemed to be greatest among the programs that had not established dissemination capacity. In the beginning of the project, many of these programs were delivering training and TA in addition to fulfilling roles in concurrent research projects. Much to the credit of the program designers, all developed at least some minimal capacity to disseminate their programs on a wider scale, and they continued to build this capacity beyond the grant. Several program designers established separate organizations responsible for dissemination. A couple of the programs were well equipped to disseminate their programs prior to the Blueprints initiative. Overall, school-based programs had the fewest TA complaints; family-based programs delivered the most consistent and proactive TA. There was also considerable variation in the perceived need for TA to implement the program with fidelity.

Implementation Fidelity

First, we consider how many sites implemented the core components⁶ of the Blueprint Programs as designed. Most sites made steady progress in implementing programs. By the end of the second year of the initiative, 74% of the sites implementing violence prevention programs had implemented *all* of the core components of their programs and on average, 86–100% of core components were implemented at these sites. That is an impressive level of implementation, given that four sites failed early and implemented none of the core components of their programs. The drug prevention program (LST) sites had implementation scores (checklist rated by classroom observers) that averaged from 81 to 86% (i.e., instructors taught 81–86% of the required points of randomly observed lessons—4 observations/each Year 1 teacher, 3 for each Year 2 teachers, and 2 for each Year 3 teachers). This is a level of implementation that is substantially higher than that reported by Botvin *et al.* in their

⁶Broad components judged by the program developers as essential for program effectiveness. These were not established by experimental manipulation or other formal tests. Each core component was assessed as to whether it had been achieved or not achieved, primarily through interviews and surveys with staff. The level of treatment integrity at each site was obtained by summing the number of components correctly and fully implemented and dividing this number by the total number of components to yield percent integrity.

evaluation of LST implementation in 56 New York Schools (Botvin *et al.*, 1990) and Gottfredson's estimate (Gottfredson, 2001) of the typical range in fidelity of 42–68%.

Sites experienced more limited success in achieving the dosage levels specified in the Blueprint for these model programs. This was particularly true for the two school-based violence prevention programs where only one-third to one half of the teachers taught lessons at recommended levels. For the violence prevention programs in general, 57% implemented all dosage elements in the prescribed amounts.

Sustainability

Our information on how many program sites are continuing their programs after the 2 year funding period is available only for the violence prevention sites. The funding period has not yet ended for the drug prevention (LST) sites. In telephone interviews with each of the 42 site coordinators 6 months after the initiative ended, 35 sites were still implementing the programs. Four of these sites had discontinued very early and had not successfully implemented any core components, and three other sites discontinued implementation after the initiative ended. This represents a high-level of sustainability and we attribute it to the careful site selection, provision of training and technical assistance, and monitoring of the quality and level of implementation with immediate feedback to the local site implementers.

The Fidelity Verses Local Adaptation Debate

There is a long history of tension between the need to implement programs as they were designed and delivered in their efficacy and effectiveness trials and the need to make local adaptations to “fit” the program to local conditions. There is currently a strong push to encourage program developers and local implementers to negotiate what components, delivery modes, and dosages will or will not be implemented at a site and what enhancements or modifications to the scientifically demonstrated program will be delivered there. Backer refers to this as a *fidelity/adaptation balance* (CSAP, 2001). We see serious problems with this approach.

First, we agree that fidelity requires only the implementation of core components as designed and demonstrated in the trials. However, virtually no pre-

vention programs, even those officially designated model or Blueprint Programs, have established which components are core and which, if any, are optional. Backer and others propose using a nonexperimental “core component analysis” to establish which components are core (Backer, 1995; Dusenbury & Falco, 1995). This approach has serious limitations, and the most sophisticated forms proposed involve data demands that are so high, this approach will not be feasible for some time to come. Relatively few prevention programs have even conducted mediating effects analyses to verify the underlying theoretical rationale or causal mechanism involved. Our knowledge about core components is simply inadequate to make this determination, and any negotiation with local implementers about what can be deleted or modified on these grounds is highly problematic. In time, this may become a viable option, but for the present, it is not.

Second, a number of the key assumptions in the Balance Approach are questionable. For example, it is assumed that *the local environment is an unchangeable given*. As noted above, our experience working with sites to build the necessary capacity to implement Blueprint Programs suggests otherwise. As noted by Shore (2000) at a recent Annie E. Casey Conference, the critical question may not be “Will this program fit in this local context?” but “How does this context have to change for us to successfully implement this program here?” There are obvious limits to local changes to facilitate the successful implementation of proven programs, but accepting the local context as unchangeable is not a good way to begin negotiation with local sites over how to effectively prevent or reduce local levels of violence, substance abuse, or delinquency.

Another assumption is that *the only way to get local “buy in” is to negotiate control* over program content and the delivery process and intensity. This is clearly not the case. We were able to establish “buy in” by our capacity building efforts that facilitated a local needs assessment and selection of appropriate program(s), the development of key interagency linkages, lining up resources, and identifying and supporting local champions for the program. Our monitoring of the quality of training and TA provided, negotiating with program providers for better services and providing immediate feedback on fidelity problems also helped establish local buy in.

It is also assumed that *local adaptation is inevitable*. We experienced very little local adaptation in the Blueprint initiative and were able to achieve a

high level of fidelity. Gray *et al.* (2000) also report little adaptation and relatively high fidelity in their evaluation of CSAP program implementation. Both studies report that local implementers who were strongly encouraged to implement programs “as designed” were able to do so and came to acknowledge the wisdom of implementation fidelity as the expected results were realized.

The need for and effectiveness of local adaptation of prevention programs is greatly overstated, and the available research does not provide much support for this claim. Language and cultural adaptations are most easily justified; but even here the evidence suggests this is often exaggerated. Botvin’s original and African American versions of the LST curriculum (Botvin, 1998) had similar effects on African American students; Gottfredson and Koper (1996, 1997) report robust effects across gender, race/ethnicity and class for drug prevention programs; Wilson and Lipsey (in press) found service programs are equally effective for minority and White youth; Cook *et al.* (1999, 2002) found no race, class, or gender differences in the effectiveness of school-based programs; and most individual prevention programs that have looked for possible race/ethnic differences in program effects do not find them (see for example: Alexander, 1997; Allen & Philliber, 2001; Botvin, 1998; Henggeler, 1998; Lochman & Wells, 2003). Because we have occasionally found gender and race/ethnicity effects in program effectiveness, we must continue to look for them and design our evaluations to test for them. But the a priori assumption that these effects are always present and that every program must have a separate treatment or curriculum for each sex and racial/ethnic group is unwarranted. Pressure for this form of adaptation is more a political issue than a scientific effectiveness issue; more an issue for adults than youth. There is increasing evidence that the contemporary youth culture is a postethnic, increasingly blended culture (Kotkin & Tseng, 2003) and that programs that address basic developmental needs are equally effective for both sexes and all racial/ethnic groups.

The available research demonstrates that fidelity is related to effectiveness and any bargaining away of fidelity will most likely decrease program effectiveness (Battistich *et al.*, 1996; Blakely *et al.*, 1987; CSAP, 2001; Fuchs & Fuchs, 1989; Gottfredson, 2001; Gray *et al.*, 2000; Kam *et al.*, 2003). There is very little experimental evidence on the impact of local enhancements or modifications on the effectiveness of programs. What is available provides mixed results, and

there is a tendency to substitute program sustainability for program effectiveness as the outcome criteria in these studies (CSAP, 2001). Local adaptation may well increase the likelihood of sustaining a program, but if it renders the program ineffective, this is not a desirable outcome. Both fidelity and sustainability are necessary to an effective prevention effort.

Finally, in practice, the local adaptation that does take place is neither negotiated nor an effort to achieve “balance.” The adaptations that did occur in the Blueprint Initiative were typically made by front line treatment staff or teachers, not by the administrators or persons responsible for bringing the program into the community or school, persons in a position to negotiate with designers. They were typically made without developer consultation; without any knowledge of the theoretical/conceptual rationale for the program; and they typically involved dropping entire components, levels of required training, and dosage levels. A frequent adaptation to the Life Skills Training Program by teachers was the addition of curriculum involving the use of scare tactics—an approach that we know does not work and that sometimes has negative effects (Lipsey and Wilson, 1998). These kinds of adaptations clearly threaten the effectiveness of the program. Although other types of substantive adaptations may not undermine effectiveness, they do create uncertainty about the program’s effectiveness. The claim of program effectiveness, based upon a program’s experimental trials, cannot be logically sustained in the face of substantive adaptations.

CONCLUSIONS

The Blueprint Replication Initiative demonstrates that model programs can be implemented on a wide scale with both fidelity and sustainability. However, such gains are seldom achieved through grants that simply pour money into communities without knowledge of their capacity or even willingness to deliver a given program. Our own experience shows that sites are seldom prepared to implement and sustain programs. We believe that any statewide or national prevention initiative must include ample time and money for local capacity building prior to implementing programs and that some independent monitoring of the quality of training, technical assistance, and fidelity is essential if the potential prevention effects are to be realized.

The Gold Standard is widespread adoption of model programs, implemented with fidelity, and

sustained by routine funding sources within the community. The call for a negotiated balance in fidelity/adaptation has the potential for lowering this standard, encouraging and empowering local implementers to make questionable adaptations, and undermining the research community's commitment to fidelity. It could easily backfire and undermine public confidence in scientific claims that we have programs that work, if these programs prove ineffective when we take them to scale. When adaptations consistent with the theoretical rationale for a program are deemed necessary, it is critical that we establish their effect on program outcomes with experimental trials.

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REFERENCES

- A3 Alexander, J. F., Pugh, C., Parsons, B. V., Sexton, T., Barton, C., Bonomo, J., Gordon, D., Grotmeter, J. K., Hansson, K., Harrison, R., Mears, S., Mihalic, S. F., Ostrum, N., Schulman, S., & Waldron, H. (2000). Functional family therapy. In D. S. Elliott (series ed.), *Blueprints for Violence Prevention*, Book 3, Center for the Study and Prevention of Violence, Institute of Behavioral Science, University of Colorado, Boulder, CO.
- Allen, J., & Philliber, S. (2001). Who benefits most from a broadly targeted prevention program? Differential efficacy across populations in the teen outreach program. *Journal of Community Psychology*, 29, 637-655.
- A4 Backer, T. (1995). Assessing and enhancing readiness for change: Implications for technology transfer. In T. Backer, S. David, & G. Soucy, (eds.), *Reviewing the Behavioral Science Knowledge Base on Technology Transfer*, National Institute on Drug Abuse, Rockville, MD.
- Battistich, V., Schaps, E., Watson, M., Solomon, D., & Lewis, C. (1996). Prevention effects of the child development project: Early findings from an ongoing multisite demonstration trial. *Journal of Adolescent Research*, 11, 12-35.
- Blakely, C., Mayer, J., Gottschalk, R., Schmitt, N., Davidson, W., Roitman, D., & Emshoff, J. (1987). The fidelity-adaptation debate: Implications for the implementation of public sector social programs. *American Journal of Community Psychology*, 15, 253-268.
- Botvin, G., Baker, E., Dusenbury, L., Tortu, S., & Botvin, E. (1990). Preventing adolescent drug abuse through a multimodal cognitive-behavioral approach: Results of a three-year study. *Journal of Consulting and Clinical Psychology*, 58, 437-446.
- Botvin, G., Mihalic, S. F., & Grotmeter, J. K. (1998). Life skills training. In D. S. Elliott (series ed.), *Blueprints for Violence Prevention*, Book 5, Center for the Study and Prevention of Violence, Institute of Behavioral Science, University of Colorado, Boulder, CO. A5
- Center for Substance Abuse Prevention (CSAP), (2001). *Finding The Balance: Program Fidelity and Adaptation in Substance Abuse*. SAMHSA, U.S. Department of Health and Human Services, Rockville, MD.
- Cook, T., Haig, F., Phillips, M., Settersten, R., Shagle, S., & Degirmencioglu, S. (1999). Comer's school development program in Prince George's County, Maryland: A theory-based evaluation. *American Educational Research Journal*, 36, 543-597.
- Cook, T., Hunt, H., & Murphy, R. (2002). *Comer's School Development Program in Chicago: A Theory Based Evaluation*, Institute for Policy Research, Northwestern University. A6
- Dusenbury, L., & Falco, M. (1995). Eleven effective components of drug abuse prevention curricula. *Journal of School Health*, 65, 420-425.
- Fagan, A., & Mihalic, S. (2003). Strategies for enhancing the adoption of school-based prevention programs: Lessons learned from the Blueprints for Violence Prevention replications of the Life Skills Training Program. *Journal of Community Psychology*, 31, 235-253.
- Fuchs, D., & Fuchs, L. (1989). Exploring effective and efficient preferential interventions: A component analysis of behavioral consultation. *School Psychology Review*, 18, 260-283.
- Gottfredson, D. (2001). *Schools and Delinquency*, Cambridge University Press, Cambridge, U.K.
- Gottfredson, D., & Koper, C. (1996). Race and sex differences in the prediction of drug use. *Journal of Consulting and Clinical Psychology*, 64, 305-313.
- Gottfredson, D., & Koper, C. (1997). Race and sex differences in the measurement of risk for drug use. *Journal of Quantitative Criminology*, 13, 325-347.
- Gray, D., Emshoff, J., Jakes, S., & Blakely, C. (2000). ESID and dissemination research: A case study and critique of a change model's fidelity. TX. Texas A&M University, College Station.
- Greenberg, M., Domitrovich, C., Graczyk, P., & Zins, J. (2001). The study of implementation in school-based preventive interventions: Theory, research and practice. Center for Mental Health Services, Substance Abuse and Mental Health Administration, U.S. Department of Health and Human Services, Washington, DC.
- Henggeler, S. W., Mihalic, S. F., Rone, L., Thomas, C., & Timmons-Mitchell, J. (2001). Multisystemic therapy. In D. S. Elliott (series ed.), *Blueprints for Violence Prevention* Book 6, Center for the Study and Prevention of Violence, Institute of Behavioral Science, University of Colorado, Boulder, CO. A2
- Kam, C., Greenberg, M., & Walls, C. (2003). Examining the role of implementation quality in school-based prevention using the PATHS curriculum. *Prevention Science*, 4, 55-63.
- Kotkin, J., & Tseng, T. (2003). Youth's cultural, racial blur. *Honolulu Advertiser*, Sunday, June 15, B-1, B-4.
- Lipsey, M., & Wilson, D. (1998). Effective intervention for serious juvenile offenders. In R. Loeber & D. Farrington (eds.), *Serious and Violent Juvenile Offenders*, Sage, Thousand Oaks, CA, pp. 313-345.
- Lochman, J., & Wells, K., (in press). Effectiveness of the coping power program and of classroom intervention with aggressive children: Outcomes at a one-year follow-up. *Behavior Therapy*. A7
- Mihalic, S., & Altman-Bettridge, T. (2004). A guide to effective school-based prevention programs, Chap. 11 and 12. In W. L. Turk (ed.), *School Crime and Policing*. Prentice-Hall, Englewood Cliffs, NJ. A8

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Mihalic, S., Ballard, D., Michalski, A., Tortorice, J., Cunningham, L., & Argamaso, S. (2002). Blueprints for violence prevention, violence initiative: Final process evaluation report. Center for the Study and Prevention of Violence, Institute of Behavioral Science, University of Colorado, Boulder, CO.

Mihalic, S., & Irwin, K. (2003). From research to real world settings: Factors influencing the successful replication of model programs. *Youth Violence and Juvenile Justice, 1*, 307-329.

Shore, L. (2000). Remarks by Lisbeth Shore. *Annie E. Casey Conference on Replication*, November, 2000, The Annie E. Casey Foundation, Baltimore, MD.

Wilson, S., & Lipsey, M. (in press). Are mainstream programs for juvenile delinquency less effective with minority youth than majority youth: A meta-analysis of outcomes research. *Research on Social Work Practice*. **A7**

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