ORGINAL PAPER

Adapting School-Based Substance Use Prevention Curriculum Through Cultural Grounding: A Review and Exemplar of Adaptation Processes for Rural Schools

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Abstract A central challenge facing twenty-first century community-based researchers and prevention scientists is curriculum adaptation processes. While early prevention efforts sought to develop effective programs, taking programs to scale implies that they will be adapted, especially as programs are implemented with populations other than those with whom they were developed or tested. The principle of cultural grounding, which argues that health message adaptation should be informed by knowledge of the target population and by cultural insiders, provides a theoretical rational for cultural regrounding and presents an illustrative case of methods used to reground the *keepin'* it *REAL* substance use prevention curriculum for a rural adolescent population. We argue that adaptation processes like those presented should be incorporated into the design and dissemination of prevention interventions.

This paper is submitted posthumously by Margaret Colby.

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Introduction

Adolescent drug prevention has advanced significantly since its infancy. In the beginning, the struggle was to develop effective drug prevention programs. Today, lists such as those provided by SAMHSA's National Registry of Evidence-based Programs and Practices (NREPP) can point to numerous exemplars of effective programs. The present challenge is taking these programs to scale by applying them beyond their initial audiences. This is particularly true in schools, which have been the site of many prevention interventions, because teachers must respond not only to program needs but also to a host of ecological factors such as the specific needs of their students, school and classroom cultures, communities, as well as a host of revolving curricular issues (Moore et al. under review; Wandersman et al. 2008). Consequently, most schools do not use evidence-based programs, and even when they attempt to do so, they modify them significantly (Ringwalt et al. 2004a). The examination of these modifications, including both changes and deletions of content, is captured in the evaluation of program *fidelity*, which includes elements of *adherence* to the curriculum as outlined in the curriculum guide/manual and the degree of *adaptation* or modification of curriculum methods and content (Berman and McLaughlin 1976). Fidelity assessments seek to capture these elements by measuring the amount of the program delivered (i.e., dosage), quality of program delivery, student engagement, and the extent to which unique program elements are present or absent (i.e., program differentiation) (Dusenbury et al. 2003).

Studies of fidelity to prevention curricula show that implementers typically only cover 48–86 % of core program components (Botvin et al. 1989, 2001; Elliot and Mihalic 2004; Ringwalt et al. 2004a). One potential way fidelity is impacted is the simultaneous use of two or more prevention curricula by two-thirds of schools (Ringwalt et al. 2000). Although it is possible that schools are implementing one program poorly and simply ignoring the other program, it is more likely that teachers are using an á la carte form of adaptation where they "pick and choose" the components of various prevention programs that they determine to be best suited to their teaching and/or students (Ringwalt et al. 2000). Another way, as identified by Ringwalt et al. (2000), includes infrequent use of curriculum guides and failure to teach the materials as specified in the manual.

There are two main reasons that school-based curricula are adapted at the local level. The first relates to curriculum-specific issues, such as objectives, length, complexity, and associated training support (Ringwalt et al. 2004b). The second reason is the context in which the program is implemented such as location, organizational context, temporal and financial resources, characteristics of implementers, and characteristics of the population (Ringwalt et al. 2004a). Despite that fact that curriculum fidelity is positively associated with students' level of interest in prevention lessons (Dusenbury et al. 2003), at least some teachers decide that lessons must be altered. Thus, many teachers implementing curricula are, on their own initiative, adapting programs based on their perceptions of local needs or even their own personal preferences.

As we attempt to identify the processes by which programs can be widely disseminated, then, the challenge for prevention scientists is not merely one of scope (i.e., the number of schools involved in prevention efforts) but also one of fit (i.e., fit of a curriculum with the needs of the new target audience). As a result, adaptation has become one of the frontiers of prevention science and practice (Greenberg 2004; Pentz 2004; Rogers 2003; Rotheram-Borus and Duan 2003; Sandler et al. 2005). The focus moves from seeking adherence to the original curriculum design toward concerns about whether adapted or localized interventions have advantages over generic or universal approaches (Hansen et al. 1991; Hill et al. 2007).

Research in community psychology advances the idea that interventions should accommodate ways "sociocultural diversity interacts with diversity in ecological contexts within which individuals live" (Trickett 1996, p. 218). This view also accords with recent calls arguing for adaptations that fit local needs (Greenberg 2004; Pentz 2004; Roberto et al. 2009; Rogers 2003; Rotheram-Borus and Duan 2003; Sandler et al. 2005). Sometimes described as a culturally situated or a contextualized intervention, benefits include the potential to address local needs, to increase community ownership, enhance uptake, and to increase cultural relevance (Botvin 2004; Dusenbury et al. 2003).

One can conclude that a shift is occurring in thinking about the dissemination of prevention interventions (Hecht and Miller-Day 2010). The traditional notion has been that the highest degree of adherence to program design is desirable with adaptation seen as failure to maintain fidelity. Termed "adaptation.1" (Hecht and Miller-Day 2010), this type of adaption is defined as deliberately or accidentally changing a prevention program by adding, modifying, or deleting program components or changing the manner/intensity of delivering program components. In contrast, a new theoretical approach, labeled "adaptation.2" (Hecht and Miller-Day 2010), is emerging that assumes that adaptation is a normal and expected part of program implementation and dissemination. In their review of program implementation, for example, Durlak and DuPre (2008) report that adaptation of program components was common and that no programs reported 100 % fidelity. Although some scholars believe that the need for and effectiveness of local adaptation may be over-stated (e.g., Drake et al. 2001; Elliot and Mihalic 2004), many prevention researchers now support balancing the need for program fidelity with a desire for local or cultural adaptation (Backer 2001; Durlak and DuPre 2008; Dusenbury et al. 2003; Griner and Smith 2006; Hohmann and Shear 2002; Ringwalt et al. 2004a; Trickett 1996). From this perspective, it is unreasonable to assume that adaptation at the level of implementation can be fully eliminated or that it is even desirable to do so. That no program is implemented with 100 % fidelity implies, as Durlak and DuPre (2008) pointed out, that adaptation may have some positive effect on program outcomes. Moreover, local adaptation can provide a sense of ownership, or buy-in, from community stakeholders which may impact the eventual sustainability of the program (Botvin 2004; Johnson et al. 2004). Adaptation is assumed to be part of the dissemination process and one that must be better understood.

Many questions remain about adaptation processes. While we know that developers may need to adapt curricula for different populations, less is known about the best methodologies for successfully completing this process. We refer to the adaptation process used by program developers as "*designer adaptation*" and differentiate it from a second type of adaptation, "*implementer adaptation*," or what is done in the field by program deliverers (e.g., teachers) during implementation. In this paper we focus specifically on the former, *designer adaptation*.

Designer Adaptation Practices and Processes

Several models for adaption have been proposed. Barrera et al. (2011) describe four types of culturally targeted
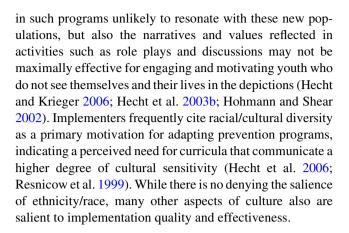
interventions: (a) prevention research cycle interventions, (b) cultural adaptation of evidence-based interventions, (c) investigator initiated culturally grounded interventions, and (d) community initiated indigenous interventions. Designer adaptation, as we define it, spans both (b) and (c).

According to Barrera et al. (2011), there are "good models and growing agreement on the process that might be followed in conducting an 'evidence-based cultural adaptation' of an evidence-based intervention" (p. 446). Backer (2001), for example, offers a set of guidelines for effectively adapting programs that include identifying and understanding the core theory behind the program, obtaining/conducting a core components analysis of the program, and assessing concerns about adaptation/fidelity as they pertain to the particular site of implementation. It is hoped that the involvement of program developers in the adaptation process will reduce or eliminate "haphazard or inappropriate adaptations" (p. 41). Similarly, Lee et al. (2008) integrate "planned adaptation" into Wandersman et al.'s (2008) interactive systems framework for dissemination and implementation. They outline four steps: (a) examine the theory of change or core components, (b) identify differences between original and target populations, (c) adapt program content for target population, and (d) adapt the evaluation strategy (Lee et al. 2008). Summarizing models for cultural adaption, Barrera and Castro (2006) suggest four phases: (a) information gathering, (b) preliminary adaptation design, (c) preliminary design testing, and (d) adaptation refinement. In addition, it has been suggested that program developers study the natural process of adaptation and incorporate effective teacher modifications into curricula (Ringwalt et al. 2004a). These guidelines suggest a best-practice for culturally adapting an existing curriculum. Given the diverse and dynamic nature of communities, however, there is a need to move beyond identifying "best-practices" that work for replicating, importing, and adapting curricula to particular communities to identifying and explicating "best-processes" that can generate or adapt interventions for any community or for one community as it changes over time (Trickett et al. 2011). Indeed, guidelines for cultural adaptation do not provide methods for culturally grounding one.

Which Culture?

Our review of the literature demonstrates that culture often is one of the driving forces behind adaptation. Issues of mismatch emerge when programs are transported from one cultural context to another. For example, prevention programs developed among and for inner city African American and/or Latino/a youth may be inappropriate when transported to White middle class, suburban youth. Griner and Smith's (2006) meta-analysis of 76 prevention programs supports this conclusion. Not only are the images presented

in such programs unlikely to resonate with these new populations, but also the narratives and values reflected in activities such as role plays and discussions may not be maximally effective for engaging and motivating youth who do not see themselves and their lives in the depictions (Hecht and Krieger 2006; Hecht et al. 2003b; Hohmann and Shear 2002). Implementers frequently cite racial/cultural diversity as a primary motivation for adapting prevention programs, indicating a perceived need for curricula that communicate a higher degree of cultural sensitivity (Hecht et al. 2006; Resnicow et al. 1999). While there is no denying the salience of ethnicity/race, many other aspects of culture also are salient to implementation quality and effectiveness.

Cultural Sensitivity and Adaptation

The centrality of racial/cultural diversity as a primary motivation for adapting prevention programs indicates the perceived need for curricula that communicate a higher degree of cultural sensitivity. It is argued that curricula need to accommodate the cultures represented in the target audiences. The literature conceptualizes cultural sensitivity in several different ways. In one groundbreaking article, Resnicow et al. (1999) utilized a linguistic analogy to describe cultural sensitivity as having two dimensions: surface structure and deep structure. Surface structure involves matching curricula to observable, superficial, characteristics (e.g., people, places, language, food, product brands, locations, and clothing, as well as preferred channels and settings for program delivery). Surface structure can be imbedded through expert and community review. Deep structure refers to the underlying elements or structures such as cultural values and meanings. For example, in a 1955 case study described and reanalyzed by Trickett (2011), women in a Peruvian village refused to boil water because of a cultural belief that cooked water (regardless of its temperature when consumed) was linked with illness. The cultural significance tied to cooked water is an example of a deep structure. Incorporating deep structure into the curriculum is far more complex since it requires an understanding of cultural, social, historical, environmental, and psychological forces that influence target health behavior.

A more specific taxonomy, proposed by Kreuter et al. (2003), outlines other ways in which prevention programs can be culturally adapted. First, peripheral strategies refer to "packaging" the program to give the appearance of cultural appropriateness (e.g., colors, images, fonts, pictures). A title that uses the phrase "A guide for African Americans" would be an example of a peripheral strategy. Second, evidential strategies enhance the perceived relevance of a health issue for a group by presenting evidence about how it impacts that group. For example, evidential strategies say that rates of drug use are higher among

Group X than among Group Y as well as among other groups in the United States. Third, linguistic strategies make programs more accessible by providing them in the dominant or native tongue of the intended audience. Fourth, constituent-involving strategies draw on experiences of the group, such as involving lay community members in planning and decision-making for the program. Fifth, sociocultural strategies—similar to Resnicow et al.'s conception of "deep structure"—refer to strategies that discuss health issues in the broader context of social and/or cultural values and characteristics of the intended audience.

Two examples of cultural adaptation are provided by the Life Skills Training and Project Northland curricula. In the first example, Botvin et al. (1989) report adapting a smoking prevention curriculum originally tested with predominantly white, suburban students for an urban, Hispanic population. Two psychologists and two Hispanic health educators, two experts on Hispanic cultural issues, two reading specialists, and 59 urban, non-white students reviewed the original curriculum. Although the review process did not result in modifications to the underlying preventions strategy, changes were made regarding the reading level of student materials as well as the examples used to illustrate program content and situations for behavioral rehearsal exercises (Botvin et al. 1989).

A second example is Project Northland that was originally designed during the 1990s to prevent early-onset alcohol use among rural adolescents in Minnesota. The program was adapted later for use with a multiethnic population in Chicago. The adaptation process included reviewing the literature regarding ethnicity and alcohol use, incorporating Resnicow and colleagues' "core values" for African American and Hispanic communities into the curriculum, creating a community advisory committee, becoming familiar with political and community structures, schools, organizations, and neighborhoods in Chicago, translating materials into Spanish, Polish, and Chinese, conducting focus groups, and pilot testing (Komro et al. 2004). Unfortunately, even after these adaptation steps, Project Northland did not result in significant reduction in substance use or initiation (Komro et al. 2008), perhaps because the adaptation processes only altered what Resnicow would call the surface structures of the curriculum.

Contrary to these examples, however, the process of cultural adaptation may not always involve a straightforward set of changes targeted to a specific racial or ethnic group because members of the targeted group may perceive culturally adapted materials as "singling out" or "casting an unfavorable light" on their community. This type of reaction is more likely when the behaviors addressed are associated with social stigma, such as substance abuse (Kreuter et al. 2003). Thus, attempts to target adaptations may be seen as

stereotypic or over-simplifying the group's culture or cultures and may not be maximally effective if the most salient tailoring variable is race or ethnicity (Hecht et al. 2003b). It is not clear, then, which is the more effective strategy—an exclusive focus on a specific group or inclusion and multiculturalism. Unfortunately, most work to date on cultural sensitivity does not allow us to predict the level, or focus of accommodation, that is maximally effective—a deficit that led to the development of the principle of cultural grounding (Hecht and Krieger 2006).

The Principle of Cultural Grounding as an Approach to Adaptation

Within the cultural sensitivity literature, Hecht and others have articulated a position characterized as the principle of cultural grounding (Hecht and Krieger 2006; Hecht and Miller-Day 2009). While the adaptation literature focuses on the role of culture, much of the literature is concerned with how to transport a curriculum to a new culture through what Resnicow et al. (1999) would label the introduction of surface structures and Kreuter et al. (2003) would call peripheral strategies. This type of adaption is what Barrera et al. (2011) refer to as the cultural adaptation of evidence-based interventions. Complementing the cultural adaptation and sensitivity literature and emerging out of similar theoretical and conceptual roots, the principle of *cultural grounding* is a prevention philosophy derived from communication competence (Spitzberg and Cupach 1984) and narrative theories (Bruner 1986, 1991; Fisher 1987; Polkinghorne 1988, 1996) as well as multiculturalism (Green 1999). The central theoretical construct of this approach, "grounding," involves processes discussed in the cultural sensitivity approaches but places greater emphasis on the idea that prevention messages be derived from the culture with cultural group members as active participants in message design and production. It also invokes core values, narratives, and communication styles as central features of deep structure. This theoretical move is a "difference of degree" because those ascribing to related sensitivity and adaptation approaches also enlist cultural group members and incorporate their insights.

The principle of cultural grounding grew out of related theoretical literature establishing emic or group-centered communication research (Carbaugh 2005; Hecht et al. 2003a; Kreuter et al. 2003; Philipsen 1992, 2008). This line of research was initiated in the 1970s first to articulate an ethnic perspective on communication in general (see summary in Hecht et al. 2003a). Early work articulated "African American" (Hecht et al. 2003a) and "Mexican–American" (Hecht et al. 1990) perspectives on effective communication. Starting in 1989, this perspective was

applied specifically to adolescent substance use and prevention.

The application to adolescent substance use focused research on adolescents' perspectives on the social processes of substance use. First, a line of this research examined how adolescents make sense of drug offers, their norms and values, how they make decisions about use, and how they resist offers (Miller et al. 2000). Next, this research described similarities and differences in these processes across ethnicity and gender (Miller et al. 2000; Moon et al. 1999). This work involved narrative interviews, focus groups, and other qualitative methods, as well as quantitative survey research. It resulted in a prevention curriculum characterized as "from kids through kids to kids" or "kid-centric" because it is grounded in adolescent experiences and youth culture, developed, at least in part, by adolescents, and then presented to adolescents. The curriculum development grew from cultural narratives and proceeded iteratively through participatory action research and is an example of developing a culturally grounded preventative intervention (see Castro et al. 2010). Support for the usefulness of cultural grounding was demonstrated by the results of a randomized effectiveness trial of the original culturally grounded *keepin' it REAL* curriculum (Hecht et al. 2006, 2003b).

Central to cultural grounding is the participation of cultural group members in message production. Two theoretical rationales are provided to justify incorporating target group members in actively constructing messages. The first, called Theory of Active Involvement (Greene, in press), argues that target group members' active involvement in developing interventions increases arousal and involvement in information processing and this, in turn, predicts greater comprehension (both accuracy and among of recall), as well as positive perceptions or liking of program materials. The ultimately result of these processes is anti-drug expectancies, changes in intentions and behavior change. A narrative engagement theory (Lee et al. 2011; Miller-Day and Hecht in press) argues that active engagement is associated with increased identification, liking, and perceptions of realism that result in attitude, intention and ultimately behavior change. Moreover, when target group members generate their own narratives for interventions, personal stories of drugs and drug use can be altered (Miller-Day and Hecht in press). These stories can change the way target group members think of substances and substance use.

This paper provides an illustrative example of how the principal of cultural grounding was applied to the designer adaptation of the evidence-based, *keepin' it REAL* curriculum for use in rural schools. The original *keepin' it REAL* curriculum was grounded in youth culture as well as a specific set of ethnic, gender, and regional cultures within

Phoenix, Arizona. This paper describes the ways in which the curriculum was "regrounded" for rural schools in Pennsylvania and Ohio. The process mirrored the tactics used to develop the original version with one difference: rather than starting from scratch this process involved "re"grounding the existing curriculum. Regrounding assumes the need for the infusion of culture, in a sense starting with a new culture, but without eliminating the original prevention strategy. Thus, a narrative, skills-based curriculum informed by social cognitive and communication competence theories was retained (Hecht and Miller-Day 2009; Miller et al. 2000), but the rural culture of the target audience was the basis for curriculum content and teaching methods. Regrounding maintains the quintessential characteristics of a culturally grounded approach due to the "primary role that consumers and key stakeholders play in developing the intervention's procedures, content, and materials" (Barrera et al. 2011, p. 448). The current paper makes a contribution to the prevention literature by describing the processes involved in cultural regrounding by which prevention interventions might be adapted for implementation with populations other than those for whom the intervention was originally developed.

An Illustrative Example of Cultural Regrounding

Cultural grounding and emic research in general provides the challenge of identifying the appropriate level of analysis. One could argue that each individual school should be involved in message development because each constitutes a unique culture, or *context of diversity* in which the broader cultural group classification "becomes differentiated and modified by … specific circumstances" (Trickett 1996, p. 218). While theoretically this approach is most consistent with the principle of cultural grounding, it presents a number of challenges, including economy of scale and validation. First, producing separate curricula for each school reflects prevention practices that have failed to produce desired effects because each effort tends to be idiosyncratic rather than theory-based (Ringwalt et al. 2000). Moreover, even if one could link prevention scientists to individual schools, the costs of such an approach would be exorbitant. Second, the challenge of establishing the efficacy of such an approach would similarly challenge resources. For both of these reasons it is probably impractical to utilize the school as the level of grounding; however, future research is needed to address this issue.

The challenge then becomes identifying a cultural grouping that is broad enough to be practical but will still be seen a "local." Previous work suggests that multiculturalism or inclusion is effective when the issue is race or ethnicity (Hecht et al. 2006). However, youth also differ in

a number of other areas that might define their culture, including geographic region (Cohen 2009; Tebes 2010). Not only does most prevention address urban needs but it is unclear if a multicultural and culturally targeted approach to geography would be effective. Thus, to illustrate this adaptation process, we start with a short review of rural culture that guided all development activities in our adaptation. We then describe the phases in our process of regrounding the original *keepin' it REAL* curriculum for a rural population.

Why Rural, Adolescent Substance Use Culture?

The focus on rural populations was based, in part, on the National Institutes of Health's designation of rural populations as an underserved audience due to the considerable disparities, compared to urban populations, in health (Haynes and Smedley 1999). Contributing factors to the disparities experienced by this population are a lack of access to quality healthcare (Gamm et al. 2003; Glasgow et al. 2004; Pande and Yazbek 2003; Van Dis 2002) and poverty, as a larger percentage of rural Whites, African Americans, and Hispanics live below the poverty line compared to their metropolitan counterparts (United States Congress 1990).

Rural–urban differences persist in terms of adolescent substance use. Overall, for example, rural adolescents have higher levels of tobacco, alcohol, and methamphetamines use than their non-rural counterparts (Gfroerer et al. 2007; Johnston et al. 2009; Lambert et al. 2008; Roehrich et al. 2007) and often begin using drugs at an earlier age (Spoth et al. 2001; Sussman 2005; Zollinger et al. 2006). Although rural populations face many health inequities, adolescent substance use is particularly problematic because of its associations with short-term consequences such as substance-related motor vehicle crashes and risky sexual behavior as well as long-term health problems, including various cancers (Hutchison and Blakely 2003; National Rural Health Research Center [NRHRC] 2001; Pruitt 2009; United States Department of Health and Human Services [USDHHS] 2004).

The inherently social nature of adolescent substance use in both rural and urban settings (Tobler et al. 2000) makes it an ideal context for examining the benefits of adapted curricula based on geographic culture. Exploring substance use within the rural cultural context, however, is also rife with challenges. Rural adolescents, like other racial, ethnic, and cultural groups are not a homogenous group. However, compared to other groups, rural adolescents are an extremely understudied population resulting in comparatively little literature to suggest what rural cultural norms for substance use might be and what types of resistance strategies would be perceived as culturally appropriate (or

inappropriate) in any rural context. There is evidence, however, that adolescents living in rural areas share common experiences by nature of their relative geographic isolation. Low population density combined with convenient access to secluded outdoor settings, according to extant research, facilitates unsupervised interaction with peers and opportunities to use drugs unobserved (Oetting et al. 1997; Pettigrew et al. 2012). Furthermore, because rural communities are often spread out over great distances, many rural adolescents lack the transportation necessary to participate in extracurricular activities or socialize with friends outside of school. A lack of access to pro-social, age-appropriate activities is likely a factor that contributes to the finding that rural adolescents frequently report engaging in substance use due to boredom (Kelly et al. 2004; Pettigrew et al. 2011).

The relative geographic isolation that characterizes rurality in the U.S. contributes to cultural features that may shape the social nature of substance use. One such feature is the role of extended family in the lives of adolescents. While urban and suburban families tend to be organized around the nuclear unit, rural adolescents tend to live in close proximity to and have strong relationships with both nuclear and extended relatives (Coleman et al. 1989; Keefe 1988; Heller et al. 1981). The importance of family relationships is often associated with a strong preference to remain close to relatives, even when mobility is perceived as advantageous for personal advancement (Kannapel and DeYoung 1999; Wilson et al. 1997). Another feature of rural culture is the role of the community in the lives of youth. The preference for remaining close to family translates into a general lack of mobility; as a result, populations remain relatively stable in many rural areas. Adolescents grow up knowing many (if not most) residents of the community, and this knowledge translates to strong perceptions of connectedness with the physical and social characteristics of their hometown (Atkin 2003; Eacott and Sonn 2006; Pretty et al. 2006). Taken together, these features of the cultural environment form a backdrop for exploring the way substances are both offered and refused in rural communities (Pettigrew et al. 2011, 2012).

Community Liaisons

An initial step in our process of culturally regrounding *keepin' it REAL* was to hire community liaisons to build a relationship between the schools and project personnel as well as provide local contacts and expertise. As others have acknowledged (e.g., Trickett and Schensul 2009), established community partnerships are needed for moving prevention efforts beyond initial development and efficacy testing; thus, liaisons were chosen based on their personal knowledge of the communities they were assigned to serve

(e.g., lifetime member of the community), their knowledge of adolescents and substance use prevention (e.g., current or previous professional experience in substance use prevention in that community), and their ability to work with the schools in their geographic area (e.g., current or previous experience working with schools in the community). We discussed this role with retired teachers, outreach workers, and prevention specialists. Retired teachers, who initially seemed like the best option, expressed limitations in their time commitments (hours per week) and availability when on vacation or other travel. None were hired for these reasons. University outreach workers, who also seemed ideal given their familiarity with research and the local communities, were over-committed in most cases. One university outreach worker was ultimately hired as the liaison for the Ohio region. His close involvement with communities proved invaluable in recruiting schools, training teachers, and supporting the implementation of the curriculum. It should be noted that other outreach obligations and bureaucratic obstacles associated with receiving payment for his work in this project, made this role particularly challenging for this liaison. His overall dedication and competence overcame the problems. The other liaisons were prevention specialists. In Northeast Pennsylvania, a local community-based prevention organization collaborated with us by providing two liaisons. This organization already was involved in delivering prevention curriculum in their geographic area, but was not using an evidence-based practice. In return for access to the curriculum, they proved not only particularly helpful recruiting schools and supporting the curriculum, but had the added advantage of supporting the curriculum once the intervention ended. Finally, for Central Pennsylvania, a local prevention coordinator was hired as the liaison. His job was the delivery of prevention in his school district and, as a native, was knowledgeable about a number of local schools. This liaison was dedicated to the project and proved instrumental on a volunteer basis during formative research. Unfortunately, funding for his position was eliminated during the first year he served as liaison and, although he continued to serve as liaison while in his new position, he was limited in time and access to schools. In total, then, four liaisons were hired to represent three geographic areas: Ohio ($n = 1$), Central Pennsylvania ($n = 1$), and Northeast Pennsylvania ($n = 2$). Liaisons managed approximately 13 schools within each geographic area.

Liaisons' main objectives were to manage partnership logistics, including: (1) facilitating relationship-building between the research staff and the school, (2) recruiting students for initial interviews and the student advisory group, (3) recruiting new schools and youth groups, (4) recruiting teachers for focus groups, (5) providing technical assistance to schools (e.g., assisting in the community assessments and evaluations of curriculum, training and/or assisting with curriculum and video equipment), and (6) tracking implementation schedules of their schools.

Liaisons attended an initial training session at the sponsoring university. During training they were introduced to the project and provided copies of the original *keepin' it REAL* curriculum and videos as well as a detailed description of their role in the project that included a project timeline and a breakdown of their project tasks. Throughout the project, liaisons maintained continuous contact with their assigned schools in order to sustain a relationship between project personnel and the school administrators and teachers. The liaisons played an instrumental role in facilitating the collection of pre-intervention survey data in the fall of 2009 and post-intervention survey data in the spring of 2010 and 2011. Because community liaisons were also longstanding members of their rural communities with close professional knowledge of youth culture, their participation in the project not only facilitated rapport and logistical coordination with participating schools but also the aims of regrounding the curriculum in rural culture.

Adaptation Phases: Hearing the Voices of Rural Culture

After defining the scope and direction of our study, we employed several tactics to perform a cultural regrounding of the *keepin it REAL* curriculum. Steps were designed to integrate the voices of cultural insiders, that is, rural community members, into the regrounded curriculum. Because we wanted to maintain the original "from kids, through kids, to kids" design of the original curriculum, the process involved steps that began with rural adolescents and incorporated their feedback throughout the iterative regrounding process. Figure 1 illustrates the process involved in designer adaptation.

Phase One: Formative Interviews with Adolescents

As indicated in Fig. 1, the initial stage of the project involved conducting in-depth interviews with 118 rural adolescents. Participants were recruited from schools classified as being located in a fringe, distant, or remote area of "town" or "rural" locales according to the National Center for Education Statistics (http://nces.ed.gov/surveys/ruraled/page2.asp). The interviews aided the cultural grounding of curriculum by collecting stories of interviewee's (a) perceived identity; (b) hometown and the surrounding area; (c) risky behaviors; (d) offers or encounters with alcohol, tobacco, or other drugs (ATOD) and deflecting offers; (e) goals, aspirations, and visions—or "possible selves"—of the future; and (f) parental and
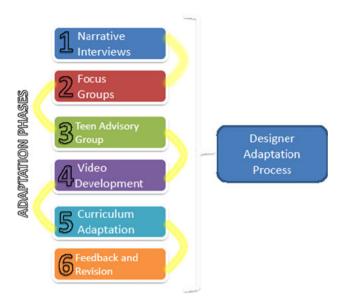
Fig. 1 Designer adaptation process. *Note*: All six phases of the designer adaptation process were linked in an iterative and reflexive process. As new information was gathered, it was integrated into the curriculum so that "rural voices" were infused into the regrounded curriculum

sibling opinions regarding substance use. A face sheet for each interview consisting of demographic information (gender, age, grade, school, ethnicity, and length of residence in rural communities) was completed by participants at the time of their interview.

The candid examples offered by youth were integrated directly into the activities and vignettes used in the curriculum. For example, settings for vignettes included remote open areas since abundance of space figured prominently into youth descriptions of their hometown and surrounding areas. In drug offer contexts, bonfires in open fields, sporting events such as football, and riding dirt bikes figured prominently. Additionally, vignettes and role play activities were revised to include a broader array of people than in the urban version of the curriculum. Whereas the urban curriculum depicted peers mainly in depictions of offers or encounters with alcohol, tobacco, or other drugs, the rural revision included substance offers by cousins, siblings, and adult family members. The interviews provided a wealth of information about rural grounding that was incorporated into each lesson (e.g., examples, scenarios, and activities), and also into the video productions and images used in teaching and packaging materials.

Phase Two: Focus Groups with Teachers

A second method for "hearing the voices" of rural culture used to reground the curriculum involved eliciting implementers' and other information-rich rural experts' reactions, suggestions, and experiences and integrating these

into the curriculum. Project liaisons sent flyers and e-mails to each of the study schools in order to recruit teachers' involvement in a series of four, 4-hour focus group interviews (Morgan 1996) in each of the three geographic areas for a total of 12 focus group interviews. The goal of these focus group discussions was to assess, create, develop, and refine the original *keepin' it REAL* (*kiR*) curriculum specifically for rural students. The final sample of focus group participants consisted of teachers, drug and alcohol counselors, and school administrators in a rural school or community representing the rural diversity described in the previous sections.

Participants were involved in all four focus group sessions in their geographic area and represented fourteen different schools across the three regions in our study, a broad range of classroom teaching experience, and a mix of genders (Female $n = 11$; Male $n = 3$). All participants were non-Hispanic Whites which is reflective of the population in these areas. Focus group participants were paid \$50 for participation in each focus group session. The first focus group session in each of the three geographic areas reviewed alcohol and drug use rates in their communities based on information provided by the research team. Additionally, participants were asked to discuss the psycho-social-developmental challenges faced by young people in their community. The concerns raised by participants in this first group interview led to the development of a new lesson to more explicitly address stress and stress management. In the second focus group session, participants viewed the videos in the existing curriculum and were asked to provide feedback on how to make characters, settings, situations, and messages appropriate for the rural youth in their community. This is discussed in more detail below, but we learned that many rural communities do not have fast food, malls, movie theatres, and the youth do not often play soccer. Suggestions were to emphasize hunting, fishing, NASCAR, the 4H organization, barns, and the county fair. Additionally, participants pointed out that rural police are often as much as 1 hour away from a community and provided insight into the problems (and opportunities) this poses for drug use in a rural community. In the third group, participants provided feedback on existing lesson plans, systematically examining each of the ten lessons for ways to adapt the lesson for rural youth. This set of group interviews revealed details such as students in rural schools needing a bit more instruction in brainstorming, team building, and assertiveness training. The fourth group asked participants to provide feedback on a draft version of the regrounded curriculum.

Phase Three: Teen Advisory Group (TAG)

Whereas focus group interviews with adults were invaluable, it was also necessary to include young people's
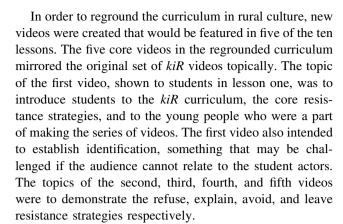
perspectives as local experts; therefore, a teen advisory group (TAG) was created. The youth perspective is integral to promoting adolescent health and developing a culturally grounded curriculum. This model views youth as a resource and not just as a problem to be solved (Hohenemser and Marshall 2002). For this reason, a TAG was created to supplement youth interviews and provide rural youth with a forum through which they could infuse their ideas and voice into the adapted *kiR* curriculum.

Teen advisors were recruited by liaisons based on their demonstrated ability to work in a group setting, their willingness to commit time to the work, and lifelong residence in their rural community. Again, these rural communities represented the diversity described above. In a 1 day retreat, a total of eleven Pennsylvania students (7th grade $n = 6$; 8th grade $n = 5$) gathered to provide input on the curriculum, share their personal ATOD experiences, and brainstorm culturally (rural, youth) appropriate ways to help peers avoid ATOD use. As the *kiR* program is intended to be "from kids, to kids, through kids," teen advisors also assisted in the designer adaptation process by giving feedback about the original *kiR* curriculum, logo, and videos. As the rural curriculum began to emerge the teen advisors were asked to provide feedback on the new video scripts, and the lessons including in-class activities and homework. Teen advisors also helped design the new rural curriculum logo, choose promotional materials, and provided critical feedback on the appeal and usability of the updated *kiR* website. These peripheral strategies were useful for packaging the curriculum and web materials in a way that would be appealing to youth in rural contexts. The feelings of friendship and collective efficacy that emerged from this retreat continued after it ended as the teen advisors set up a Facebook page to facilitate ongoing dialogue and maintain contact with each other. The teen advisors were called on collectively, through the Facebook page, and individually via telephone and email communication to provide ongoing feedback on curriculum development.

Phase Four: Video Development

The videos are an integral part of the *keepin' it REAL* curriculum. Pilot research demonstrated the efficacy of this delivery device by promoting youth interest and engagement in the curriculum (Hecht et al. 1993). Later research demonstrated that mere exposure to the videos had an independent effect on reducing substance use (Warren et al. 2006), suggesting, perhaps, that the videos teaching resistance skills are a core component to the *kiR* curriculum. Hence, based on feedback from the youth interviews, focus group interviews, and advisory group members, we produced an entirely new set of videos for the regrounded rural curriculum.

In order to reground the curriculum in rural culture, new videos were created that would be featured in five of the ten lessons. The five core videos in the regrounded curriculum mirrored the original set of *kiR* videos topically. The topic of the first video, shown to students in lesson one, was to introduce students to the *kiR* curriculum, the core resistance strategies, and to the young people who were a part of making the series of videos. The first video also intended to establish identification, something that may be challenged if the audience cannot relate to the student actors. The topics of the second, third, fourth, and fifth videos were to demonstrate the refuse, explain, avoid, and leave resistance strategies respectively.

The videos dramatized and depicted specific stories that emerged from the formative student interviews, with care to select stories that reflected rural norms, attitudes, and values, rural settings, rural activities, characters relevant to rural student's experiences, and demonstrated how offers of ATOD are made and are successfully deflected by rural youth. Four rural high schools were recruited to produce these videos based on enthusiasm and support from the school administration and staff as well as project staff's judgment about their ability to complete the project. In each of these schools, high school students enrolled in technology classes were approached by their teachers and invited to participate in the project. Each group was asked to produce a video featuring one of the four resistance strategies (refuse, explain, avoid, and leave) from the curriculum. An award-winning documentary film writer and director was hired to provide consultation and guidance to the students, offering them a greater understanding of the research strategies, production aesthetics, directing, editing, and production management skills needed to create artistically and technically competent public awareness videos. For their participation, each school received stock music and video equipment to enhance their own resources.

Project staff, including the production consultant, met with the schools to introduce the project and discuss their participation in creating a video. We provided each production team with core story ideas that emerged from the formative interviews. Story elements included settings (e.g., open, remote wooded areas), typical activities (e.g., riding ATVs, hanging out in the woods), common characters (e.g., family members, people in town who know the kids' names, avoiding the depiction of cows and Amish characters to depict rurality), and descriptions of sample drug offer-resistance episodes experienced by rural youth (e.g., family member offering the teen some chewing tobacco at a hunting camp and the teen replying, "No thanks, I'm good" and pulling out a can of turkey jerky and placing a wad of jerky in his cheek as "pretend" tobacco). More than six scenarios were provided for each resistance strategy.

The video consultant then discussed production techniques for writing and producing narrative videos (in addition to providing ongoing consultation). Following this initial discussion, each of the four schools choose a REAL resistance strategy and began developing storyboards and script concepts. Using the core story ideas that emerged from the formative interviews, the production students were to include at least one dramatization of a scenario where an ATOD offer was being made and the students successfully deflected the offer, along with a selection of testimonials at the end of each video segment. Students then developed scripts with feedback from project staff, the youth advisory group, and the video consultant. Project staff focused on prevention principles such as use of narrative and avoidance of fear appeals. The video consultant provided cinematic feedback (e.g., what was likely to make an effective video presentation) while the advisory group focused on youth and rural cultural elements. After script approval (e.g., it adhered to prevention principles, contained a clear story, and was perceived by rural youth to be interesting, believable, and a reflection of rural culture), the videos were recorded with help from the video consultant. The end product was a 5-minute digital film from each school. Contrary to expectation, the school with the most sophisticated video production facilities and staff did not produce any better quality video as judged by project personnel and the video consultant. While awaiting empirical validation, we believe the commitment by staff and administration was a more crucial determinant of the quality of the product than sophisticated production facilities.

Phase Five: Lesson Development and Adaptation

All recommendations from students, teachers, liaisons, and youth and research advisors were considered in the revision and rural adaptation of the original *kiR* lessons. The ultimate goal of this phase of the project was to infuse the empirically-validated program components of *kiR* (Gosin et al. 2003)—communication, risk assessment, decision-making, resistance strategies, and social norms—with the voices and experiences of rural youth, teachers' needs, and local expert advice. Adaptation steps included (a) infusing rural culture, (b) diversifying pedagogical approaches, (c) updating to reflect contemporary adolescent culture, and (d) reformatting lessons for usability. At every step in the process we involved local constituents, but cultural regrounding was particularly prominent during the infusing of rural culture. These activities were led by the lead author who grew up and lived in a rural community. The process is described below.

The surface and deep structure (see Resnicow et al. 1999) of all content, activities, and images associated with the *kiR* curriculum were evaluated to assess their relevance to rural youth culture. Surface changes included the incorporation of rural youth vernacular (e.g., "in the woods," "ravine," "4-wheeling"), activities (e.g., hunting, riding ATV, helping on the family farm, walking around town, going to the cabin), experiences (e.g., boredom, needing to ride the bus or rely on others to get home, the familiar presence of extended family members, going into the city to shop as an adventure), ATOD patterns of use (e.g., outdoor parties in secluded locations like wooded areas and fields, higher rates of smokeless tobacco use, overt use of ATOD by parents, absence of police presence), and interests (e.g., specific musical artists, sports like football but not soccer). While relatively minor in the scope of the project, these adaptations to surface structure often prove critical in helping youth "see themselves" in the programmatic content. Mindful of the fine line between rural stereotypes and rural regrounding, meticulous attention was given to revising lesson activities and role play scenarios by relying more on the narrative stories provided by youth rather than any one image. For example, we were more concerned with portraying the richness of a variety of rural images than, as one youth noted, showing images of farms and cows.

Moving beyond the observable, the curriculum developers also were intentional in assessing—and, when necessary, revising—the curriculum to align with the broader sociocultural contexts in which ATOD use occurs in rural communities. Qualitative analysis of the formative student interviews and educator focus group discussions revealed several prominent themes about the ATOD culture that permeated rural America in this sample (Pettigrew et al. 2011, 2012). Teachers and youth, alike, reflected on the favorable norms that often surround alcohol and tobacco in their communities, with some families taking the stance that alcohol is a "rite of passage" and it is acceptable (even if it is illegal) for youth to use alcohol when with a parent. Parents were perceived, on the whole, as contributing to youth substance use by ongoing and pervasive alcohol and tobacco use in the home, promoting activities for youth that expose youth to substance use (e.g., hunting camps), and failing to communicate with youth about ATOD. Also emerging from these conversations was the concern that adolescents use ATOD because they are "bored" by the limited types/number of activities offered in their schools and communities. While boredom is a common motivator for substance use for rural and urban students alike, participants reported communities almost devoid of opportunities for youth to engage in meaningful activities outside of school. Additionally, leisure activities almost always required a good deal of travel with no transportation opportunities. Acknowledgement of these cultural mores was woven into the deep structure of the curriculum by using them as a backdrop against which a vignette (video

scenario or in-class activity such as role play) was set. Reflection questions integrated throughout each lesson of the curriculum acknowledged these norms, their impact, and how they might be approached.
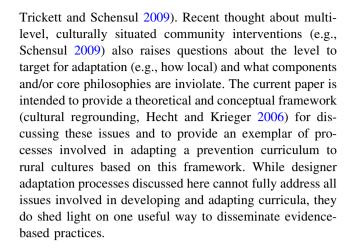
Phase Six: Feedback and Revision

An iterative feedback process was used to invite youth, rural teachers, prevention specialists, and project investigators to review each of the revised lessons. Each reviewer was asked specifically for feedback on the clarity of directions and key discussion points, feasibility of completing each activity within the allotted time, interactivity and appeal to diverse learning styles, and whether the revision maintained the authenticity and voice captured in youths' narratives. These recommendations were then integrated into the curriculum with final review of the curriculum being conducted by project investigators.

Conclusion

The prevention field has progressed to the point that its evidence-based practices are now being disseminated. However, with this advance comes the challenge of how prevention curricula can maintain their effectiveness when used in different communities. This paper proposes that the field can no longer ignore adaptation, but rather should see adaptation as a necessary, or at least an unavoidable, part of the process (for review see Durlak and DuPre 2008). In other words, a practice-based science of prevention is needed in which the realities of implementation and dissemination become part of how we create prevention interventions. To do so researchers, community advocates, policy makers, and practitioners should consider not only the various systems involved in developing, testing, implementing and disseminating evidence-based interventions but also the interactions among each of these systems (see Wandersman et al. 2008). For example, Berkel et al. (2011) offer a conceptual moderated-mediation model that incorporates program fidelity, implementation quality, curriculum adaptation, as well as recipients' responsiveness to the program in determining program outcomes. Others suggest ways implementation and adaptation can be viewed within broader intervention contexts (e.g., Durlak and DuPre 2008; Lee et al. 2008).

While developing a practice-based science seems the logical next step, it also engenders questions about the assumptions underlying universal prevention (i.e., how universal they can be) and the notion of "evidence-based practices" (i.e., valid in which contexts for what purposes and audiences) discussed by others (e.g., Addis et al. 2006; Hoagwood et al. 2001; Schensul 2009; Trickett et al. 2011;

Trickett and Schensul 2009). Recent thought about multi-level, culturally situated community interventions (e.g., Schensul 2009) also raises questions about the level to target for adaptation (e.g., how local) and what components and/or core philosophies are inviolate. The current paper is intended to provide a theoretical and conceptual framework (cultural regrounding, Hecht and Krieger 2006) for discussing these issues and to provide an exemplar of processes involved in adapting a prevention curriculum to rural cultures based on this framework. While designer adaptation processes discussed here cannot fully address all issues involved in developing and adapting curricula, they do shed light on one useful way to disseminate evidence-based practices.

Evidence-Based Practice

The model of designer adaptation described in this paper served to reground the original *kiR* lessons in the lives and experiences of rural youth as well as the culture and practices of rural schools. The paper describes the phases of adaptation and the methods we employed to accomplish these goals. Thus, this paper illustrates some of the potentially transferable "best-processes" (Trickett et al. 2011) for intervention development and adaptation. We do not intend for these methods to fully exhaust cultural grounding adaptation processes. Rather, they serve as an exemplar of designer adaptation and a voice in the emergence of a new prevention science that recognizes variability in community cultures and designs interventions with these differences in mind. An example of this process came from formative interviews which identified local practices as well as those that appear to generalize. For example, the REAL system for refusals (refuse, explain, avoid, leave) once again was found to generalize to a rural adolescent population (Pettigrew et al. 2011). However, we discovered the need to customize or adapt our refusal system to account for rural practices related to identity management (e.g., "I'm not that type of person"; Pettigrew et al. 2011) as well as settings for offers (Pettigrew et al. 2012). Moreover, the processes involved in cultural grounding (e.g., narrative interviews, focus groups with teachers, teen advisory board) both recognize community members' wealth of knowledge and demonstrate ways their voices can be incorporated into adaptation processes, something believed to be important in planned adaptation (Lee et al. 2008). In these ways, designer adaptation processes seek to make evidence-based prevention material relevant for a particular community. Some have labeled this a "market-based" approach (Greenberg 2004; Kreuter et al. 2003; Kreuter and Bernhardt 2009; Rotheram-Borus and Duan 2003; Sandler et al. 2005), arguing to start with the end user in the design of prevention messages.

Although data are not available to fully test the effectiveness of designer adaptation over other dissemination strategies, preliminary evidence suggests that the rural version of the curriculum appears more "attractive" to rural schools, with the majority of the wait-list control schools in our study requesting the rural version of the curriculum. What is less clear is how these design procedures impact implementation practices and outcomes. While this paper focuses on how designers adapt curriculum, we assume that further adaptation, which we label implementer adaptation, still occurs. We hypothesize that there will be fewer implementer adaptations and those that are made will be more philosophy-consistent for the designer adapted rural version than the existing, urban, multicultural version. We also hypothesize that rural students should be more engaged (Lee et al. 2011) with a curriculum that reflects their own rural culture. As data become available, future studies will test these hypotheses.

Regrounding Processes

One could argue that designer adaptation through cultural grounding is advantageous because it bridges schools' needs for evidence-based programs mandated by legislators (e.g., No Child Left Behind Act) and the need for local ownership and participation. As a culturally grounded intervention, it is not fully conceived and owned by the community as is the case for indigenous interventions (Barrera et al. 2011), but the regrounding process does incorporate the voices and ideas of a variety of stakeholders, such as teachers, administrators, and students. The regrounding approach, therefore, remains founded on evidence-based components but encourages adaptations to incorporate local expertise and preferences.

Designer adaptation also is similar, in some ways, to systematic replication of scientific findings, although regrounding does not seek to replicate but to adapt curricula. Many of the processes utilized in this study to reground the curriculum follow from suggestions made by Miller et al. (2000) for how to design a narrative-based substance prevention curriculum. Ideally, interested communities themselves could create their own sets of narrative videos based on experiences shared by local adolescents. Unfortunately, there are few communities that are adequately resourced, experienced, or motivated to develop and evaluate their own "kid-centric," narrative prevention program. In our 25 years' experience working with a number of practitioners around the nation, schools are most interested in purchasing a fully developed product, not a time-consuming process, regardless of the hypothesized benefits or local ownership. Designer adaptation, then, strikes a balance between the schools' need for an easily administered and implemented, evidence-based program as well as the need

to incorporate local voices in the adaptation of curricula. It provides a set of tools that can be used in the replication of prevention curricula in settings different from where they were developed.

Finally, the idea of local "ownership" involves at least two levels of understanding. First, through the process of regrounding the curriculum, local schools develop a sense of "ownership" or buy in. Here "ownership" denotes commitment to the adapted curriculum. However, a second sense of ownership involves contractual rights. Typically, these reside with the owner of the original curriculum. Some prevention scientists would argue that this is needed to exercise control over issues like training and implementation practices. Others would follow a more pragmatic, contractual logic—the developer owns the curriculum and licenses its use in return for participation in regrounding. Our schools all receive an unlimited license to use the curriculum. This is a more limited sense of ownership but fulfills their needs for access. In other projects we have turned contractual ownership over to the entities for their use. These rather nuanced issues around "ownership" challenge our existing prevention philosophy.

Problems

While the current project, we believe, advances our understanding of adaptive prevention practices, it was not totally unproblematic. A few issues emerged that challenged our model of designer adaptation through regrounding. These include differing amounts of community capacity in the form of resources at the disposal of schools and sustaining beneficial relationships with community partners.

First, communities and schools differ widely in their resources. While this probably obvious, it seriously impacts any strategy for local production of narrative substance use prevention videos as well as the ability to recruit local partners in curriculum development. For example, rural schools recruited in this study had less access to video production facilities and faculty expertise than the urban schools that participated in the development of the original set of *keepin' it REAL* videos. Advanced facilities and equipment supervised by trained teachers does not insure high quality prevention messages but the inverse, their absence, challenges the model of locally produced narrative videos. Similarly, teachers differed widely in their abilities to teach health curricula such as *keepin' it REAL*. This finding reflects other studies which argue for ongoing training and technical support (e.g., Durlak and DuPre 2008; Dusenbury et al. 2010; Fixsen et al. 2005). Finally, community members vary in their ability to contribute to curriculum development, with time constraints probably the biggest obstacle. These examples of organizational and
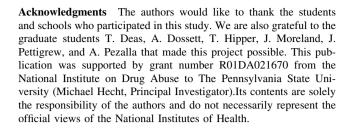
community capacity also have been identified by other researchers (e.g., Durlak and DuPre 2008; Flaspohler et al. 2008).

Second, the lines of communication between and among school personnel challenges grounded projects such as the current endeavor. We were surprised to learn, for example, that in one case the school superintendent committed the local middle school to the project without notifying the principal. In a second case, an assistant principal made the commitment without informing other administrators. Perhaps the most surprising turn of events occurred at one school where the responsible person, an assistant principal, left without informing anyone else at the school about its involvement in the project. Clearly, early and ongoing communication across multiple levels of the school system would have been helpful and cannot be assumed. Developing a network of program advocates (e.g., champions) at any given school is a recommended practice (e.g., Fixsen et al. 2005; Johnson et al. 2004).

Progress

While there were many challenges and obstacles, we believe progress is being made in understanding culturally grounded prevention messages. What is not clear is the optimal level of grounding or, alternatively, which elements of the curriculum require cultural grounding. Our work on ethnic/racial grounding suggests inclusion through multiculturalism optimizes outcomes (Hecht et al. 2006). In other words, prevention materials should be grounded in the various cultures of the audience. However, this leaves a number of questions unanswered. First, viewing community as diverse and dynamic, for example, implies that there are differing levels of community and diverse cultures within a community (Trickett and Schensul 2009) to which an intervention could potentially be grounded. Therefore, to which culture(s) within a community should a curriculum be grounded (e.g., adolescent culture, rural culture, both)? Second, do all or only some of the components, such as core components, need to be grounded in community culture (e.g., *kiR* videos or videos and role plays)? Third, does multiculturalism apply to regional cultures as well as ethnic/racial ones? Fourth, what does cultural grounding say about the future of universal interventions—do they all need to incorporate grounding procedures when disseminated or can they achieve a desirable level of outcomes and cost effectiveness in generic form? What is the optimal level of cultural grounding?

Future research should address these questions and more. As we take the next step in the development of our science, cultural grounding practices for adaptation such as those described in this paper will become, we believe, the norm for dissemination of prevention interventions.

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