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## “Applied” Aspects of the Drug Resistance Strategies Project

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### **Comments**

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## “Applied” Aspects of the Drug Resistance Strategies Project

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### Abstract

This paper discusses the applied aspects of our Drug Resistance Strategies Project. We argue that a new definitional distinction is needed to expand the notion of “applied” from the traditional notion of utilizing theory, which we call “applied.1”, in order to consider theory-grounded, theory testing and theory developing applied research. We label this new definition “applied.2” research. We then explain that our descriptive work describing the social processes of adolescent substance use, identity and use, and drug norms, as well as the subsequent development and dissemination of our *keepin’ it REAL* middle school substance use curriculum are examples of “applied.1” work. In the “applied.2” realm, we include our theory testing (e.g., tests of multiculturalism, narrative and performance theories, the Focus Theory of Norms) and theory-developing (e.g., parent-child communication, cultural grounding) research as well our new directions in theory development (e.g., adaptation processes). We conclude with a call for space in the discipline for “applied.2” work that builds and tests theory through application to significant social issues that contribute to our communities. We note obstacles in departmental and scholarly norms but express optimism about the prospects for “applied.2” research in the future of communication research.

### Keywords

applied research; substance use; adaptation; developing theory

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We are honored to share the “applied” aspects of our research in the Drug Resistance Strategies Project (see for example, Hecht & Miller-Day, 2009; Miller, Alberts, Hecht, Trost, & Krizek, 2000). We use the quotations around applied to denote the different uses of the term and we draw on the language of technology development to suggest that communication scholarship would benefit from an upgrade to its traditional conceptualizations of “applied” research from its current *applied.1* version to an *applied.2* version. In this upgrade, we argue, the foundational ideas remain the same, but new features are highlighted to expand its functionality and usefulness. Our goal, then, is to explain these versions of applied and show how they fit our program of research. Specifically, we refer to our line of community-based substance use prevention research, much of which has been supported generously by the National Institute on Drug Abuse since 1989 (R01DA005629; R01DA021670).

The first and commonly accepted use of “applied” (*applied.1*) is the use of theory and research to solve a problem. When we began the Drug Resistance Strategies Project over 20

years ago to address adolescent health and risk taking behavior, our intent was consistent with this usage – to apply our communication knowledge and research efforts to the task of understanding the social processes of drug offers, drug resistance, and drug prevention. Michelle was applying her interests in narrative and performance theory with the intent of showing that collecting, scripting, and performing personal narratives was an effective health message design strategy. Michael was applying his interest in effective communication, culture, and identity to describe the social processes of drug offers and youth and ethnic cultural identities to see how this knowledge could promote healthy behaviors.

We quickly realized that this conceptualization of applied was inadequate to describe our work. While *applied.1* maps well onto the previous exemplars offered by the *Journal of Applied Communication Research* in this series (Roloff, 2009; Walther, 2009), it does not fully capture what we have been doing. We believe that our work fits into this original model only partially, with the remainder of our work more aptly described as *applied.2* research; that is, theoretical research in the trenches. More specifically, *applied.2* research is communication research that uses theory, tests theory, and/or builds theory in community contexts, engaging communities in testing and developing theory to address significant social concerns. An *applied.2* approach builds on the strengths of traditional conceptualizations of applied research, but places greater emphasis on moving beyond the academy into the populations affected to the problem of interest, testing and building theory *in situ*, working collaboratively with practitioners and community members, focusing on socially significant outcomes, and disseminating research findings to those who can best make use of them, thus enhancing linkages among research, practice, and public policy (Miller-Day, 2008c).

The remainder of this article will discuss some of the applied contributions of our communication research, both as *applied.1* and *applied.2* work. Necessarily, it is not possible to go into great detail, so we respectfully offer summaries. For more detailed discussion of this line of research we refer you to Hecht & Miller-Day (2007, 2009) and Miller et al. (2000).

## DRS Researchers Tackling a “Problem”: *Applied.1* Research

Substance use and abuse in the United States is a significant social problem with implications for individual, relational, community, and societal functioning. Our line of research seeks to increase understanding of this social problem from a communication perspective and address this problem through prevention. The goal of prevention is to ultimately minimize the impact of this problem by deterring and decreasing alcohol and other drug usage (Hecht & Miller-Day, 2009). With this in mind, perhaps the most significant *applied.1* aspect of our work on the Drug Resistance Strategies Project (DRS) was the development and dissemination of the *keepin' it R.E.A.L. (kiR)* middle school prevention curriculum (<http://www.kir.psu.edu/index.shtml>). The formative research leading to the curriculum development was guided by narrative theory (Bauman, 1986; Fisher, 1987; Langellier, 1989, 1999), performance theory (Schechner, 1988; Valentine & Valentine, 1983), communication competence theory (Spitzberg & Cupach, 1984), focus theory of norms (Cialdini, Reno, & Kallgren, 1990), social cognitive theory (Bandura, 1997), and the communication theory of identity (Hecht, 1993) to understand the social processes of drug offers, identity, and norms in the development of a middle school substance use prevention curriculum. Below we briefly illustrate how certain findings from our formative research directed the development of our prevention curriculum.

## Social Processes of Drug Offers

Our studies applied communication competence theory (Spitzberg & Cupach, 1984) and social cognitive theory (Bandura, 1997) to describing the “who, what, how offered/resisted, where, and when” of the drug offer-resistance process among adolescents. These social processes are central to the social influence and life skills approaches used in substance use prevention efforts (Tobler et al., 2000). Our research identified four main strategies youth employ when resisting drugs (refuse, explain, avoid, and leave)<sup>1</sup>. This finding has been replicated in numerous studies and applies to adolescents of all ages across ethnic and geographical groups. These strategies and the prototypical narratives that describe them became the central element of the *kiR* curriculum, providing a “kid-centric” and multicultural approach to prevention (Hecht & Miller-Day, 2007, 2009).

## Identity

Next, identity became a central aspect of our research (Matsunaga, Hecht, Elek, & Ndaiye, in press; Miller-Day & Barnett, 2004; Pettigrew, Miller-Day, Krieger, Hecht, 2009). In this work we seek to describe youth and ethnic identities and examine their relationship to offer-resistance episodes (Pettigrew et al., 2009) and drug use (Miller-Day & Barnett, 2004). Applying the Communication Theory of Identity (Hecht, 1993), we investigated the multilayers of identity, including the overlapping ethnic, SES, gender, and age identities (Matsunaga et al., in press). This research has shown that ethnic identity functions differently for majority and minority groups (Marsiglia, Kulis, & Hecht, 2001) and clarified the relationship between acculturation processes and substance use (Matsunaga et al., in press). Recent work among rural adolescents describes a *nonuse identity* that is more salient than what was previously found among urban youth (Pettigrew et al., 2009). These findings guided the development of new identity materials and activities that were integrated in a rural version of the *kiR* curriculum, including representing a character with a nonuser identity into video enactments and a “possible selves” activity (Oyserman, Bybee, & Terry, 2006) where students are directed to envision their future selves and future goals and then identify obstacles to their attainment.

## Norms

In addition to identity and the social process of drug offers and resistance, our recent research describes normative processes related to drug offers and drug use applying Norm Focus Theory (Cialdini et al., 1990). Our approach has expanded the way “norms” are being conceptualized in the field of drug prevention by providing evidence that, in addition to descriptive norms (e.g., what other people do), personal and close peer norms also are influential to youth when making decisions about drug use (Elek, Miller-Day, & Hecht, 2006). These findings were integrated into the curriculum in two ways. First, since youth often overestimate the number of peers who use drugs, a quiz activity was developed to present accurate descriptive norms (e.g., how many of their peers smoke). In addition, the “possible selves” activity described previously was elaborated to explore personal norms as well as identities. After envisioning future identities and goals, students are asked to consider “right” or “wrong” choices based on their envisioned future identities and then directed to generate norms or standards of behavior – that are likely to facilitate or hinder achieving those identities.

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<sup>1</sup>Others in the field of communication have since taken up this line of investigation. See, for example, the work of Nancy Harrington (1995).

### ***keepin' it REAL (kiR) Substance Use Prevention Curriculum***

As the preceding discussion suggests, the findings from the formative research directed the development of *kiR*, a 10-lesson middle school prevention curriculum that successfully reduced alcohol, marijuana, and tobacco use at 14 month follow up (Hecht, Graham, & Elek, 2006; Hecht et al., 2003; Kulis et al., 2005). The curriculum development process involved an application of social cognitive theory (Bandura, 1997) in its focus on modeling, communication competency theory (Spitzberg & Cupach, 1984) in its teaching of knowledge, motivation and skills, performance theory (Schechner, 1988) in its reliance on performance modalities (video, role playing), and narrative theories (Fisher, 1987; Langellier, 1989) in its emphasis on enacting youth narratives about decision making and resistance processes, providing modeling and resistance skill practice, and eliciting students' own personal narratives. Five of the lessons are video-based, utilizing performances of the personal narratives collected through depth interviews to teach risk assessment, decision making, resistance, and other life skills. The middle school videos were produced by high school students based on a "from kids to kids through kids" model of health message design (Hecht & Miller-Day, 2009) and aesthetic and performance theory (Miller-Day, 2008a; Schechner, 1988). The middle school prevention videos were recognized with regional Emmy Awards for student productions and produced an independent reduction in substance use (Warren et al., 2006).

*kiR* was the first multicultural middle school intervention recognized as evidence (or research)-based by the National Registry of Evidence-based Programs and Practices (<http://www.nrepp.samhsa.gov/>) maintained by the Substance Abuse and Mental Health Services Administration. It is being disseminated nationally by Discovery Education, ERT Publishing, and Penn State University, and was recently adopted by D.A.R.E. America for national and international dissemination.

The recent D.A.R.E. adoption of *kiR* provides perhaps the best exemplar of our *applied.1* research. Drug Abuse Resistance Education (D.A.R.E.) is the largest dissemination network for school-based prevention curricula, including the U.S. and 44 countries around the world. Prior to adopting the *kiR* curriculum, D.A.R.E. offered a variety of curricula across the k-12 grade range, although the previous middle school curricula they administered did not produce the desired results. In consultation with their scientific advisory board, which curiously includes many of their major critics in the scientific community, they made the decision to adopt an existing evidence-based curriculum rather than create their own unique curriculum. After an exhaustive review, D.A.R.E. America licensed *kiR* from Penn State University, at least in part because the university recognized this collaboration as part of its outreach function as well as a licensing/royalty opportunity. A 12-month adaptation process ensued between Penn State and D.A.R.E., coordinated by Margaret Colby, PSU Project Director, that included the production of rural, urban, and suburban versions of the outdated videos as well as new lessons plans that updated content (e.g., changing pagers to cell phones) and recognized the need for more explicit instructions in the curriculum manual for the officer implementers. In addition, a new training protocol was developed for the D.A.R.E. versions of *kiR*, with dissemination of the curriculum beginning in September 2009. With the D.A.R.E. implementation, along with the implementation of *kiR* by individual school districts through previous dissemination sources, we believe that *kiR* is the most widely disseminated middle school substance abuse prevention curriculum in the world.

The research discussed thus far could be categorized within the *applied.1* version of applied research. Had we elected to conduct this research, develop a curriculum, and then hand that curriculum over to practitioners to implement with or without testing its feasibility or efficacy, then our research would have remained firmly situated in the *applied.1*

conceptualization of applied research. We believed, however, that we needed to further test our theories and develop new theories in-situ; that is, situated in a natural context. Therefore, we simultaneously embarked on a community-based implementation and evaluation study, testing and developing theory, and disseminating findings for use by practitioners and policy makers.

## DRS Theory Testing and Building in Action: *Applied.2* Research

Shortly after we began our first funded, community-based research project, it became apparent to us that we were engaged in something fundamentally different from what was commonly called “applied research.” Our research provided a powerful test of the theories we were using. In fact, we would argue that community-based research provides a more powerful test of theory than the method traditionally associated with “basic research.” We argue that this is particularly true when, as often practiced in our discipline, nonrandom college student samples are studied in a lab setting or through long surveys with outcome variables of little consequence in people’s lives. By applying a theory in a community setting to socially significant problems and outcomes, one provides a much stronger and, we argue, more valid test of theory. If narrative and performance theories lacked descriptive, predictive, and criterion validity, we would not have been able to produce our research findings in a single study, let alone replicated these findings across time and contexts. In *applied.2* approaches, we believe, researchers do not “just” use theory in their research; they are actively testing and developing theory in practical and useful ways.

In Miller-Day (2009), Michelle pointed out that some individuals in the communication field perceive community-based investigations as “too applied” and of little consequence for furthering knowledge through testing and building theory. This can be seen in evaluations of our work at two universities. We counter that perception with our claim that theory-guided community-based work can actually provide a stringent, ecologically valid test of theory. Moreover, application of theory in real-world contexts provides ample opportunity for new insights, leading to novel ways of conceptualizing a phenomenon and building new theory. Community-based *applied.2* research is consequential for addressing real-world problems, for knowledge building and testing, and for the individuals participating in the research – whether they are research participants, researchers, or members of a population who benefit from the research findings. We have found a home for this viewpoint in public health and the National Institute of Health. In the next section we will explicate some examples (by no means exhaustive) of how we have both tested and begun to develop theories through our community-based research. In addition to testing and extending theories such as the theory of planned behavior, communication theory of identity, and social marketing theory, we have tested multiculturalism, narrative, and performance theories, along with the focus theory of norms.

### DRS as Theory-Testing Research

**Multiculturalism**—Multiculturalism is an approach to education and health message design based on the concept of inclusion (Green, 1998). While some argue for cultural targeting, others suggest that the most effective messages include a variety of cultures (Hecht & Krieger, 2006). While multiculturalism has been around for a long time, when we began the project we were unable to find any empirical tests of its assumptions despite its rather controversial presence in the political discourse.

The implementation of the *kiR* curriculum compared culturally targeted versus multicultural health messages. With Mexican Americans, the numerically largest ethnic group in the recruited Phoenix schools, a version of *kiR* was created from and for this cultural group (see below re: cultural grounding for more information on message design). A second version



was developed for the next two largest groups, whites and blacks, covering 95% of the student population. Finally, a third, multicultural version was developed that combined these two versions and included Mexican American, white, and black youth cultures. These three versions and a control condition were randomly assigned to schools. Analyses showed that both the Mexican American and multicultural versions were effective, with the multicultural version demonstrating the widest range of effects (Hecht, Graham, & Elek, 2006; Hecht et al., 2003), and was at least as effective even among the Mexican American students (Kulis, Nieri, Yabiku, Stromwall, & Marsiglia, 2007) as well as among youth who initiated use prior to implementation (Kulis, Yabiku, Marsiglia, Nieri, & Crossman, 2007). Given the impracticality of separating ethnic groups in most school-based intervention, the multicultural version was not only at least or more effective, but infinitely more practical. Finally, these findings provide what we believe is the first evidence for multiculturalism.

**Test of narrative and performance theories**—Narrative theory argues that individuals engage their social world in a narrative mode; that social worlds are comprised of a set of stories from which we choose, and constantly re-create, our lives (Fisher, 1987). This approach positions human beings as storytelling animals and narrative as the means by which we make sense of our experiences and ourselves, organize and understand events, and recount experiences (Bauman, 1986; Fisher, 1987; Langellier, 1989). Through narrative analysis, one can gaze on the content and organization of the story to gain insight into individual and collective experiences. Given this theoretical approach, the underlying assumption of our drug prevention work has been that adolescents make substance use decisions based on the narrative storylines available to them and they will embrace stories that cohere and resonate with their lived experience. Hence, a large segment of our work has been devoted to gathering and analyzing adolescent narratives of drug resistance and drug use experiences. From this process, we have learned directly from adolescents about their lives, collecting a set of stories that resonate with the target audience and provide insight into adolescent substance use and resistance experience. When evaluating narratives, we examine within and across narratives to identify *linked stories* (common plotlines and patterned experiences) (Burck, 2005). Across developmental age, race, and urban, suburban, and rural contexts, our work has found surprising consistency in the resistance strategy stories of adolescents (Alberts, Miller-Rassulo, & Hecht, 1991; Alberts, Hecht, Miller-Rassulo, & Krizek, 1992; Hecht, Alberts, & Miller-Rassulo, 1992; Pettigrew et al., 2009). These narratives have also been valuable for understanding the metaphors adolescents use when they talk about drugs and drug use (Krizek, Hecht, & Miller-Rassulo, 1993), their motivations to use or not use alcohol or other drugs (Barnett & Miller, 2001), linkages among personal identity and normative beliefs about substance use (Miller, 1999; Miller-Day & Barnett, 2004; Pettigrew et al. 2009), and gaining insight into the role of parental communication in adolescent drug resistance (Miller-Day, 2002, 2005, 2008b; Miller-Day & Dodd, 2004).

Prototypical narratives were then scripted into performance media (i.e., stage play and film script) and performed as part of the intervention. This offered an opportunity to not only assess if a narrative-based intervention would resonate with youth, but to also test performance theory. Performance theory (Schechner, 1988) argues that drug offer-resistance episodes are “performances” that include preparation on the part of the performer (the individual making the drug use choice) and that these performances can be shaped by rehearsal and input from others. We posited that prevention messages would have persuasive effect and lasting impact on a youth audience if presented using a performance-based modality (Miller-Rassulo, 1988). Moreover, we argued that performing narratives which illustrated and exemplified “performing resistance” would enhance identification and provide youth with opportunities for rehearsal. We discovered that performances of youth narratives were persuasive and effective in impacting attitudes and expectancies (Hecht &



Miller-Day, 2009; Hecht, Corman, & Miller-Rassulo, 1993; Miller, Hecht, & Stiff, 1998) and empowering and engaging for adolescent audiences (Miller-Day, 2008b, 2008c; Warren et al., 2006). In addition to testing theory, this aspect of our research led to developing a theory of engagement with narrative messages in media (Lee, Hecht, Miller-Day, & Graham, 2010; Miller, Hecht, & Stiff, 1998).

**Test of the Focus Theory of Norms**—Norms are a central element of substance use prevention (Tobler et al., 2000). However, we believed that the conceptualization of norms could be expanded through Cialdini and colleagues' (Cialdini et al., 1990) Focus Theory of Norms that proposed a tripartite conceptualization into descriptive norms (i.e., perceptions of frequency), injunctive norms (i.e., perceptions of what others think is right and wrong), and personal norms (i.e., what the individual thinks is right or wrong). We argued that the expanded conceptualization should enhance the predictive power of norms as well as the intervention effects. When the DRS team applied the theory to substance abuse, the injunctive norms were first divided into peer and parent injunctive norms and then, later, peer norms further divided into friend and peer norms. Others also utilized the theory; however, most commonly this included only descriptive and injunctive norms (Borsari & Carey, 2003; Rimal & Real, 2003). Our research and that done by Rimal and colleagues, supports this overall framework. As predicted, the various norm types are strongly related to substance use and norms mediating the effects of *kiR* on substance use (Elek et al., 2006; Rimal & Real, 2003). However, our work suggests the descriptive, near peer, and personal norms tend to be more influential in this sphere than the other types (Elek et al., 2006). This approach to drug norms was then used in an extension of the norm construct in the Theory of Planned Behavior (Kam, Matsunaga, Hecht, & Ndiaye, 2009).

### ***kiR* as Theory-developing Research**

**Care, concern, communicate: A theory of parent-child communication about substances**—In collecting youth narratives, adolescents would often share accounts of parental strategies employed to prevent their child's substance use and stories of parental apathy over their child's substance use. This led Michelle to begin formulating a theory of parent-child communication about substances (Miller-Day, 2002, 2005; Miller-Day & Dodd, 2004) and then testing this theory (Miller-Day, 2007, 2008b; Miller-Day & Kam, in press). Much of the previous literature in this area operationalized parent-child communication about substances in terms of presence/absence, frequency, or general openness. There were very few studies that examined the complexity of what we began to refer to as "drug talks" (Miller-Day & Dodd, 2004). Providing descriptive information, the model of parent-offspring drug talks was developed to address the form, content, and function of parent-offspring discourse about drugs and drug use, with the majority of parents who seek to prevent their offspring's substance use seem to integrate ongoing socialization efforts into the fabric of their everyday lives in contrast to more targeted one-shot "drug talks" (Miller-Day & Dodd, 2004). Additionally, we learned that the specific parental practices employed in these socialization efforts seemed to vary according to family communication environments (Miller-Day, 2008b). To assess these efforts, a parent-child communication about alcohol measure was recently validated in both college (Miller-Day, 2006) and middle school samples (Miller-Day & Kam, in press). This theory accounts for general openness in parent-child communication, general family communication environment, frequency of communication about substances, and specific parental communication practices.

**Theory of Cultural Grounding**—The Drug Resistance Strategies Project was always premised on the concept that collecting and performing narratives was a means to enact culture. While there are many ways of defining culture (Baldwin, Faulkner, Hecht, &

Lindsley, 2006), narrative often is one of the key elements. We initiated the DRS Project with this as a conceptual framework.

As we began to develop alternative versions of the curriculum (e.g., high school pilot version, 3 initial middle school versions, 5<sup>th</sup> grade version, acculturation enhanced version, rural version), we needed a stronger conceptual framework for this process. We were unhappy with “cultural sensitivity,” “cultural appropriateness,” and “cultural competence” as frames because we felt that they presented a limited notion of culture, marginalized culture, by placing it outside the message (e.g., something to bring in through being sensitive or appropriate to the “other”) or provided minimal standards (e.g., competence). As a result, we began to articulate what we now call the cultural grounding approach to message design (Hecht & Krieger, 2006; Larkey & Hecht, in press).

At its most basic, the premise of cultural grounding starts with the recognition that culture is a complex, multilayered phenomenon and then integrating this complexity in developing health messages. This means we acknowledged that our target audience for our prevention messages would have personal concepts of self and would be members of various groups representing ethnicity, youth culture, SES, regions, gender, etc. So, with this approach, we sought to enact these identities as closely as possible in the health messages we developed.

Cultural grounding involves the complex process of representing and expressing the relevant culture(s). We emphasize the role of narrative as a means for accomplishing grounding in the belief that narrative health messages derived from members express that membership. However, the process of cultural grounding does not involve a straightforward convergence strategy toward any one culture. In some cases, target audiences may perceive culturally targeted 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 (Resnicow, Baronowski, Ahluwalia, & Braithwaite, 1999). Thus, attempts to accommodate by convergence may be seen as over-accommodation (i.e., when they are singled out) or stereotypic. In other cases, the most salient dimension for accommodation may not be ethnicity and race and this, too, can be problematic. Other strategies for grounding are discussed in Hecht and Krieger (2006). Unfortunately, most work to date on cultural grounding does not allow us to predict the level or focus of accommodation that is maximally effective.

### **New Directions in DRS Theory Development<sup>2</sup>**

When we first began this line of applied research, public health lacked a body of effective prevention programs for adolescents. In the 20+ years since, a plethora of efficacious and effective interventions have emerged (see list on NREPP at <http://www.nrepp.samhsa.gov/>). However, in most cases, these interventions demonstrate results when implemented by the program developer in the population for which it was originally designed. With rare exceptions, field trials without this level of control have failed to produce desirable results (Domitrovich & Greenberg, 2000). Our analysis suggests two reasons for this problem – researcher and implementer adaptation.

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<sup>2</sup>Space precludes a fuller discussion of future directions. For example, extensions are commencing to examine the effects of active production of health messages on the producers based on the work of Banerjee and Greene (2007) (Greene, PI) as well as the application of the DRS approach to encourage Latinas to resist sexual pressure (Anne Norris, PI) and to promote sun safety (Lori Crane, PI). One of the main directions in prevention research is the development and evaluation of components of a comprehensive prevention strategy. To this end we hope to use a branding strategy (Evans & Hastings, 2008) for developing and testing media and online/social networking components as well as developing and testing a parent intervention component targeted to parent-child communication styles.

When prevention research was at its earliest stages it was desirable to exercise a great deal of control over implementation processes. This allows the program developers to adjust and fine-tune the curriculum in order to magnify effects. Labeled efficacy research, this phase provides preliminary data on program effectiveness. The next step is effectiveness research during which less control is exerted. Ideally, this work might be conducted by someone other than the original project team; yet in reality this rarely happens. As a result, there is typically more control and a more favorable environment for results than might be expected at this step. In both of these phases, program fidelity, implementation that is true to the program design, is seen as necessary for effects. Like inter-rater reliability in coding, fidelity means that implementers communicate the health messages exactly as they were designed. From this perspective, deviance from the prescribed curriculum is error. This tight control was exercised in the name of developing a “science of prevention practice.” However, as more and more of these controlled trials failed to advance to dissemination status, it became obvious to many in public health that what was needed was, instead, a “practice-based prevention science.” In school-based implementations, teachers did not teach the curriculum as written and trained (Bumbarger, Kyler, & Greenberg, 2006) and schools did not adopt evidence-based practices in large numbers (Ringwalt, Ennett, Vincus, & Simons-Rudolph, 2004). Why was it that practices not supported by scientific evidence were being adopted while the scientifically supported ones languished?

We do not presume to know the entire answer to this dilemma and certainly it is a problem to which communication research in the diffusion of innovations tradition could reliably turn. However, we argue that two of the factors are the failure of program designers to adapt their curriculum to local cultures or to recognize the implementer adaptation was inevitable rather than error. In other words, a practice-based science considers variation in program adaptations and implementations to be part of what is of interest to study rather than error to be eliminated or controlled. Our goal in the research that is emerging from our latest community-based research is to describe these communication processes and hopefully develop a theoretical model – grounded in data and practice – to explain these variations in order to advance the practice-based prevention science. We continue our focus on school-based substance use prevention with the hope that future research can carry our findings into other domains of health message design and implementation.

This next step in our research is underway, supported by our fifth grant from the National Institute on Drug Abuse, and designed to further our knowledge of adaptation process by testing the maximally effective degree of adaptation. It is assumed that many implementers will adapt the program on their own, but little is known about these processes. First, the design provides an effectiveness trial for the *keepin’ it REAL* curriculum (albeit one conducted by the creators) that has been judged effective (and previously a “model program”) by NREPP. Second, the proposed study will describe naturally occurring adaptation during implementation, a process we call “teacher adaptation.” These naturally occurring adaptation processes may provide a novel approach to adaptation and help us understand how to better invoke cultural sensitivity and cultural grounding. Third, following the suggestion of Pentz (2004), this study contrasts teacher adaptation to an adaptation grounded in the culture of the target audience, a process we call “designer adaptation.” In accomplishing these goals, the study provides a second test of the novel approach that we based on the Principle of Cultural Grounding and provides an answer to questions about the most efficacious degree of adaptation.

## Conclusion

We conclude with an optimistic note. We see more and more of the new members of our discipline engaged in *applied.2* work, building and testing theory in ways that contribute to

their communities. Ultimately, we hope we will see the most prestigious journals requiring these more rigorous tests of theories and models with outcomes that reflect significant social concerns. The populations in our research will naturally expand across age, socio-economic, and cultural groups with significant implications for how people live their lives, institutions are structured, and society functions.<sup>3</sup>

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<sup>3</sup>A movement toward *applied* research will necessarily require a shift in the culture of the discipline and this has been written about in other places (Hecht, 2009). While we are excited about the engaged, applied work that we are able to accomplish, too many of our junior colleagues are still disadvantaged by publication and performance evaluation norms that devalue this type of team-based research required in community settings. We no longer believe that our job consists only of testing theories in an ivory tower vacuum and we hope that in the future, the lines between "basic" and "applied" research will continue to blur in the communication discipline and more rigorous, community-based tests of theories are examined in light of significant outcomes.

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