

Transdisciplinary Omelet: NIDA Grantees Are Cooking up a New Approach to Keeping Kids off Drugs

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“Just say no!” didn’t do it. Project DARE didn’t do it either. Neither did “This is your brain on drugs,” coupled with images of an egg frying. Now, two multimillion-dollar research initiatives funded by the National Institute on Drug Abuse are searching for ways to finally create effective and longlasting anti-drug campaigns. One of the initiatives is a transdisciplinary prevention research center that teams scientists from diverse disciplines at Duke and the University of North Carolina, Chapel Hill to identify peer influences on substance use, and leverages that knowledge into better ways of delivering prevention messages to young people. The other is a \$2.7 million study of longitudinal data collected in two Duke studies of adolescent aggression dating back to 1987.

APS Fellow Kenneth Dodge is principle investigator of the second study and co-PI of the first, with social psychologist Philip Costanzo, a specialist in how people influence one another. Dodge and Costanzo first met in the 1970s, when Costanzo was already on Duke’s faculty and Dodge was a graduate student there, studying aggression in adolescents. Dodge’s specialization eventually brought him back to Duke in 1998 to direct its Center for Child and Family Policy.

“Not only have I been interested in how an individual child becomes a substance abuser or develops a substance use disorder,” Dodge said, “but I’m even more interested in how society can intervene, how schools and courts and community programs can be structured to do that.”

” ‘Your brain is frying on the sidewalk like an egg’ is not very useful information,” said Costanzo. “And it’s not very helpful to get kids to ‘Just say no’ to drugs, because in just saying no to drugs, they’re also saying no to social formation, to membership in a group, and all of us remember how important it was when we were young to be part of something. You’re not dealing with just an individual’s resistance skills, your dealing with powerful group pressure and the negative fallout of kids being rejected by the peer groups.”

The goal of Project DARE, founded in 1983 and short for Drug Abuse Resistance Education, was to teach grade school students how to resist peer pressure and live productive drug and violence-free lives. But it didn’t work either. “Most of the research tends to indicate that it wasn’t very helpful,” Costanzo said. “It didn’t yield many effects as far as we can tell, unless there are some residual effects that we’ll find somewhere down the road.”

Enter NIDA with a bold plan to fund transdisciplinary centers to apply diverse sciences to the development of innovative prevention programs. At Duke’s center, developmental, cognitive, and social psychologists meet to talk about how adolescents learn attitudes and behaviors, and how they persuade each other. They are joined by sociologists, who add an understanding of group dynamics, as well as economists, educators, and policy makers.

“We’re assembling interdisciplinary teams to think through major problems,” Dodge explained. “For example, we know that one of the major ways that adolescents begin using substances is by learning about them from deviant peers. Ironically, perhaps the major public policy in our schools and juvenile courts and mental health programs is to segregate those children who are at risk for using substances from the mainstream and aggregate them with other deviant peers. By doing so we might be inadvertently growing substance use problems. What should we do instead? We are wracking our brains.”

Most federal research grants require investigators to develop ideas they want to test before applying for funding. This time, Dodge said, NIDA recognized that by doing so, “you just get more of the same ideas.” So it is paying for innovation instead.

And that, said Costanzo, demands a transdisciplinary approach. “You gain a broad perspective of what you’re looking at,” he explained. “You can get so wrapped up in your own models, but your own models have their limitations. They do in all fields. The hope is that you’ll generate something new if you bring these people together who have different ways of thinking about things.

“You also have to go beyond your own model to build a policy. If you’re a social psychologist, you might have a great model about how attitudes work, how they relate to behavior, but you have to know something about the structure of the system and how information flows in the system to apply that model, to bring it to the scale of the system, and that takes a different kind of scientist than exists among your social psychology group.”

The center is so intent on generating new ideas that it has set aside \$50,000-\$60,000 a year for small pilot studies “to get people to collaborate in thinking” about new approaches. It anticipates funding about five such studies a year at about \$10,000 each.

“We’re a proto-center,” Costanzo explained, “a beginning center to explore the viability of the transdisciplinary approach.” The hope is that this will evolve into a full, multi-service center. “One of our components is what we call a practice core, which asks, ‘How do we translate what we come to know about drug use in adolescents into a user friendly system for people in the community, for the department of public instruction, for school principals, for mental health people?’ ”

The transdisciplinary approach is especially important in substance abuse research, Costanzo said, because so many variables are at work, creating a complex web of family, individual, and social factors. “You can affect the broad factors much more rapidly than you can affect those things that are up close and in the head,” he pointed out. “In some sense, it’s harder to change people individual by individual or to provide prevention on an individual basis than it is to construct a system that works. And in order to construct a system that works, you need multiple levels, at least of social science.”

His own field, social psychology, “has an awful lot to offer with regard to subtler forms of influence,” he said, “not just the usual attitude change things, which are important, but knowing more about the influence of groups and social identities. Usually, when teenagers take drugs, they don’t sit in their room alone; they relate to a group to which they are conforming and from which they adopt norms, so it’s important to bring social psychology to bear on how people get together in groups.”

A key element in the study of group influences is examining gender differences. “Boys and girls start out with things like drugs for different reasons,” Costanzo said. “Girls tend to get involved through their relationships with boys, whereas boys tend to get involved in terms of their group behavior in boy groups. We’re trying to look at what makes a girl leader, what makes a boy leader, how leadership happens in a peer group. We’re trying to track the process by which leaders might affect the behavior of others.”

A great deal of foundation-building still needs to be done, however, before the investigators can even begin brainstorming interventions. “We can’t even conceive of a peer group intervention until we know how the peer group works,” Costanzo said, “how leadership works in reality, how conformity occurs. So we have preliminary research to do. We can’t just brainstorm ideas, we have to brainstorm with data, and we first have to generate that data – for example, we have to discover the base rates of drug use. There are all sorts of questions that have to be answered before you get to the big enchilada of prevention or intervention.”

The \$2.7 million study, Development and Prevention of Substance Use Problems, is analyzing data from two Dodge-led ongoing longitudinal studies of aggressive conduct.

“The concept grows out of growing recognition in the field that children who have early aggressive conduct problems – they’re disruptive in school, disobey their parents, have fights with their peers — are at high risk for adolescence substance use problems,” Dodge explained. The study has three main goals: 1) learning whether that association between aggressive conduct and substance use is real; 2) understanding how early conduct problems may lead children toward adolescent substance use; and 3) testing whether preventing early conduct problems can reduce substance use disorders later.

One set of data comes from the Fast Track program, the largest violence-prevention study ever funded by the National Institute of Mental Health. A comprehensive effort to prevent development of chronic violence in children who are at high risk, Fast Track is being implemented and evaluated in four regions of the country, following 891 children since 1991 to determine whether the 446 who participated in the intervention program have fared better than controls.

The intervention, Dodge said, “has been shown to have at least initial success in preventing conduct problems in elementary school.” Now he is asking whether it is also preventing later substance use problems.

The second set of data is from the Child Development project, which has followed 585 Durham, North Carolina children since 1987, when they were four years-old. The project plans to continue following them at least another five years. When the children were in elementary school, about 12 percent of them had significant conduct problems. Dodge is now asking the data two key questions: Are those who had conduct problems also at higher risk for diagnosed psychiatric substance use disorders? And, if there is an association, how does it develop?

Here, too, the focus is on peer relations, Dodge said. “We have preliminary evidence to suggest that children who have early conduct problems and are socially rejected by their peer classmates get excluded from the mainstream social and school groups, and in middle school they turn to deviant peer groups – gangs or cliques or small groups of other ostracized kids. Those groups then nurture the

development of a variety of problem behaviors, including substance use. Our preliminary analyses showed this, which is what led us to get the project grant.”