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Students and Substances: Social Power in Drug Education

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A statewide evaluation of a school-based substance use and drug education program called California Drug, Alcohol, and Tobacco Education (DATE) was conducted from 1991 to 1994 for the State Department of Education. Researchers used multiple methods to evaluate DATE programs such as Drug Abuse Resistance Education (DARE) and Red Ribbon Weeks. Analysis of 143 field interviews with educators and administrators, and 40 student focus groups (grades 5–12) revealed that educators attempted to prevent student substance use by providing a "no-substance-use" message through high fear appeal; offering rewards; and attempting to improve students' self-esteem by teaching refusal skills. Student interviews indicate program dissatisfaction and service-related cognitive dissonance. Random survey results (5,045 students in grades 7–12) showed that over 40% of California's students were "not at all" influenced by educators or drug education programs, 15% were influenced "a lot" or "completely," and nearly 70% described a neutral to negative affect toward educators. Regression analyses showed that survey responses did not depend on self-reported substance use, nor the number of drug programs received (among other factors). This large-scale, multi-modal evidence suggests that drug, alcohol, and tobacco education programs had no positive influence on a majority of students' substance-use decisions, and had other effects counter to those intended. This was especially true during the period when youth are faced with substance-use decisions, grades 7–12. Given the similarity of many U.S. drug education programs, student rejection of DATE programs is significant. Results and the need for a conceptual shift in how students are viewed and educated about substances are discussed.

Recently, adolescent substance use has increased to higher levels more quickly than at any time in the past 15 years (Johnston, O' Malley, & Bachman, 1995). Usage increases occur among those youth who have received more drug education than any group since school-based drug education began. From 1991 to 1994, federal drug education spending from the Department of Education topped $3.5 billion (March 1996, Congressional Budget Office), with California boosting the federal contribution seven-fold by spending about $1.6 billion or $83.87 per year per student (Romero et al., 1994). Despite these massive efforts, youth substance use continues to fluctuate.

Background

Social Influence and the Efficacy of School-Based Drug Prevention Education

Traditionally, school-based drug education has included three types of program delivery strategies: (a) information programs, in which educators provide youth with facts about drugs; (b) affective programs, in which educators attempt to increase youth self-esteem through the enhancement of their personal communication skills; and (c) social influence programs, in which educators motivate youth and often teach them how to refuse substances offered by others.

There is a discrepancy in the literature in the use of the term "social influence," and this is more than a semantic issue. Although only one strategy is called "social influence," each of the three traditional drug education strategies includes unique influence methods to gain no-substance-use compliance from students. Raven (1989) defined social influence as "A change in one person—in beliefs, attitudes, behavior, emotions . . . due to the behavior or simply the presence of another person or group" (p. 19). Compliance is defined as the behavior of an individual (target) that is influenced by another individual (influencing agent) (Raven, 1989). Without someone present to monitor behaviors, a positive affect toward an influencing agent combined with an internal locus of control quite often predicts compliance (Ajzen & Fishbein, 1980; Jones & Davis, 1965; Kelley, 1967; Weiner, Heckhausen, Meyer, & Cook, 1972). When evaluating drug education, several factors not presently considered should be evaluated: influence method(s) of the educator, student locus of control, student affect toward the educator, and student perception of influence from the program and educator.

Using traditional evaluation methods that do not take into account the aforementioned social influence factors, information and affective programs have been deemed ineffective in deterring substance use (Bangert-Drowns, 1988; Brown & Horowitz, 1993; Bruvold, 1990; Clayton, Catarello, & Johnstone, 1996; Dukes, Ullman, & Stein, 1996; Ennett, Tobler, Ringwalt, & Flewelling, 1994; Klitzner, 1987; Schaps, DiBartolo, Moskowitz, Palley, & Churgin, 1981; Tobler, 1986, 1992). The social influence model has been called the "most promising" delivery strategy (Ellickson, 1995, p. 101) even though "results are modest and typically hold up for only one to two years" (Ellickson, 1995, p. 109). In sum, traditional program efficacy appears limited, and an examination of key social influence factors may help explain why this is the case.

Raven (1965) described six unique methods of social influence; four of them—information, coercion, reward and expertise—are relevant to how drug educators might gain compliance by preventing student substance use. When informational power is used, the student is provided with "facts" intended to convey the consequences of substance use. The value of informational power is derived from how it is used. In 1993, Raven wrote:

> The effect of informational influence can be either enhanced or reduced, if the information is presented in a threatening or fear-invoking manner, as, for example, the use of fear appeal by a physician who attempts to convince a patient to stop smoking. (p. 237)

With coercive or reward powers, the threat of punishment (e.g., suspension, expulsion) or the offer of concrete rewards (e.g., t-shirts) can be powerful methods of influence. The provision of information that drug use leads to serious health deterioration, and that non-use leads to good health, is not use of coercive or reward powers, but rather of informational power with fear appeal.

Expert power often stems from the student's attribution of superior knowledge or ability to the educator. The educator communicates these qualities explicitly with such words as "I have had particular training and many years of experience in drug issues, and on that basis you should not use drugs." Expertise is also communicated implicitly, for example, through the dress and demeanor of the educator. Raven (1993) noted that "Physicians, attorneys, professors, and other professionals go through elaborate stage-setting devices for expertise—display of diplomas, imposing libraries, etc." (p. 238).

A limited model of social influence has been applied to drug education research by Humphrey, O'Malley, Johnston, and Bachman (1988). They found that offering rewards or coercing adolescents decreased substance use (with the caveat that adolescents only changed their behavior when monitored by adults), but they did not comprehensively examine the specific social influence practices of service deliverers such as police officers and teachers.

Our study extends current social influence research. We examined the methods of influence used in drug education to prevent student substance use, as well as the effects students perceived regarding overall influence, affect, and locus of control.

Study Overview

The education components under study are found in the California Drug, Alcohol, and Tobacco Education (DATE) program. In DATE, the California State Department of Education during

1991–1992 required implementation of prevention education activities, including the creation of drug policies, retention or addition of specialized drug educators, and delivery of prevention education programs. Participation in the DATE evaluation was mandated by the California State Department of Education. Qualitative interview data were collected from administrators and educators in 1992, and qualitative and quantitative data were collected from students in 1993.

Rationale and Purpose

Reviews of evaluations of substance-use prevention programs show that many evaluations contain quantitative data from one source only—students—usually examining the relationship between programs and substance use. There is little direct explanatory evidence concerning fluctuations in use. Conclusions drawn from prevention education research, therefore, are often highly interpretive (Horowitz & Brown, 1996), and real program progress is obfuscated.

In our multi-modal descriptive research, we examined drug education programs and adolescent substance-use decisions. We compared methods of influence found in DATE programs with mediating social influence factors that are germane to youth substance-using attitudes and behavior. Because this study is applied and contains multiple data sources grounded in the experiences of educators and youth, it offers a deeper understanding of school-based drug education than is currently available. We answer two questions:

- Across school-based drug educational programs (e.g., DARE and Red Ribbon Weeks), how do educators actually attempt to deter student drug, alcohol, and tobacco use?
- Do children and adolescents perceive these methods as effective in influencing their substance-use decisions?

1992 Study: School Personnel Efforts to Deter Student Substance Use

In this first study, the goal was to establish the influence methods used by California educators in prevention education programs such as DARE, Red Ribbon Weeks, and Health/Science courses.

Method

Participants. Seven to nine key personnel, from 108 schools in 50 school districts, were interviewed in the field (Gilchrist, 1992; LeCompte & Preissle, 1993; Spradley, 1979; Zelditch, 1962). A subsampling process resulted in the final analysis of 72 interviews from school district personnel, and 71 from school site personnel, for a total of 143 interviews.

Instrument. A broad interview schedule was used as a semistructured instrument to determine the social influence processes used in drug education. The instrument is described in Brown and D'Emidio-Caston (1995). When appropriate, follow-up questions related to influence strategies were asked.

Data Collection

There were three stages of data collection. Stage 1 comprised district and school selection. Fifty California school districts were selected (the 8 largest districts in the state, and 42 randomly selected districts). Three schools were randomly selected from each of the 8 largest districts, and 2 schools were randomly selected from each of the 42 smaller districts. If a district had only 2 schools, both were included. In sum, there were 108 schools from 50 districts, reflecting California's school population.

Stage 2 comprised personnel selection and interviews. The seven to nine key personnel targeted for interviews in each district included the district DATE coordinator, one DATE coordinator supervisor, one DATE coordinator staff member, the district financial coordinator, the superintendent or assistant superintendent, the DATE site coordinator and a teacher at each of two schools visited, and a community member involved with the DATE project.

The DATE coordinator from each district was asked to arrange a confidential interview with each selected participant, and was given discretion to select the community member and the teacher. Informants were interviewed at the school or district office, in a private, secluded area, without the presence of any other individuals. The data were collected over a two-day period.

Once the participant gave informed consent, audio taping of the interview began. Eleven interviewers—each with previous field interviewing experience and each specially trained for the DATE study—conducted the interviews, which lasted between 30 minutes and 1 hour. Each interviewer completed a comment sheet, noting immediate ob-

servations. The interviews and interviewer comments formed the data corpus for analysis.

Stage 3 was the selection of interviews for analysis. Of the collected 388 interviews, 143 were selected for these analyses. From each of the 25 randomly selected districts, the two most informative interviews, as determined by the interviewers, were purposely selected (Marshall & Rossman, 1989). From each of the remaining 25 districts, two interviews were randomly selected for transcription and analysis. Finally, all interviews from the three "most informative" districts (selection based on previous interview data) were selected for analysis. This process resulted in analysis of 72 interviews from school district personnel, and 71 from school site personnel.

Data Analysis

Grounded theoretical approach. The constant comparative method found in the grounded theoretical approach (Glaser & Strauss, 1967; Strauss & Corbin, 1990) was used to analyze social influence processes used by educators. By asking persons to explain their perceptions, researchers uncover the "taken-for-granted reality" of the culture under study (Berger & Luckmann, 1967; Garfinkel, 1967). This method is designed to allow assertions to emerge and evolve as data are compared, ultimately resulting in findings "grounded" in data.

Symbolic interaction. In addition to using grounded theory, we took the symbolic interactionist perspective, in which cultural meaning is constructed through shared definitions of reality (Blumer, 1969). Through an understanding of shared interactions among individuals who interact with their social and material environment through common linguistic structures, cultural patterns emerge, and a social world is defined (Schutz, Walsh, & Lehnert, 1967).

The analytical process. Findings are supported by exemplar statements taken directly from the data set. Each exemplar meets the criteria of inclusion set by the working definition of each topic or category, as determined by constant comparisons of transcribed interviews, comment sheets, and field notes. Each researcher independently analyzed all data by constantly comparing statements within and between interviews to determine similar or dissimilar statements of beliefs and behaviors as related to the DATE program. Through rigorous categorizations of statements, researchers gained an in-depth understanding of the programs and their perceived effects. Following independent analyses, researchers met every two weeks to compare their results and to arrive at a consensus of categories, themes, and patterns of interaction regarding the DATE program. Findings agreed upon by the researchers were considered valid and reliable after they met several criteria using constant comparisons: the findings were deemed qualitatively meaningful; researcher effects were examined; outliers and negative evidence were examined and determined not to change the finding; and spurious relations and rival explanations were excluded (Kirk & Miller, 1986; Miles & Huberman, 1994). Unless otherwise stated, each exemplar represents a majority of data concerning that topic.

Findings

Data analysis revealed three primary social influence strategies that educators used to prevent adolescent substance use. These findings are consistent across grade levels and district sizes. In addition to providing an example of each strategy, we relate them to the Raven model, as previously discussed.

Drug education strategy #1: Harmful consequences. Here, service deliverers attempted to influence students not to use substances through graphic portrayals or presentations of the consequences of substance use. One respondent ("R"), an educator, provided an example of a graphic portrayal used to prevent student substance use:

> R: They've done an activity, I'm not sure what this is really called, but, where they paint the faces white of the student and that student is dead and they do so many students every few seconds depicting that is how many people die in traffic accidents on a major holiday weekend. Then the student returns to class and is not allowed to speak the rest of the day. (Laughter.) It makes an impact. (#288, p. 5)

These methods are intended to appeal to the fears of youth regarding one's body, or the legal consequences of substance use, and were most often linked with DARE and health or science courses. According to the Raven model, service deliverers who use these methods attempt to prevent substance use through information or fear appeal and by conveying their expertise ("I" is the interviewer and "R" is the respondent):

> I: What is the message of law enforcement in terms of the students?
>
> R: I'd like to think the message is drug abuse is life abuse, which is our slogan and everyone knows that slogan. I think the message is that drug, alcohol and tobacco, substance abuse or substance use, is not acceptable. I think that is pretty loud and clear, especially if we're talking about, we do pretty high-visibility when it comes to drinking—or using substances and driving. We do a lot of education when it comes to that. (#179, p. 5)

In the context of what is called a no-substance-use message, this educator describes her "high-visibility" message that "drug abuse," meaning any drug use, is "life abuse." This message is often delivered by a police officer in uniform, which connotes authority and expertise to students.

Drug education strategy #2: Rewards. Here, service deliverers attempted to influence students by offering a reward in exchange for the commitment not to use substances:

> R: When we do these things we have t-shirts we've made up that we give to the kids, number one as a reward for doing it for us, number two to promote what we are doing. We have poster contests, essay contests, and we give out a zillion awards to the kids. (#275, pp. 13–14)

This method of influence was primarily linked with anti-drug assemblies, poster contests, and the ubiquitous Red Ribbon Weeks.

Drug education strategy #3: Self-esteem. Here, a student's self-esteem is often linked with what educators called decision-making. Respondents described only one legitimate decision on the part of students, however: refusal to use any substances. This is decision-making within a "no-use" and "refusal skill" context. Educators are to motivate students and teach them refusal skills so that the students will make the "right decision" by saying "no" to substance use. In the process, student self-esteem is thought to be boosted. In self-esteem programs, this typical scenario is posed to students by educators:

> R: Consider when you're out at the beach and somebody comes over with a keg of beer and you're the responsible driver and you know what's going to happen. How do you gracefully decline that kind of hospitality, without looking like a nerd and being a social outcast from that day forward? (#001, p. 8)

When the respondent asked "How do you gracefully decline that kind of hospitality without looking like a nerd?" he linked refusal of substances (i.e., learning social skills) with self-esteem.

Informants offered descriptions of how this influence strategy is used with students, for example in role-playing:

> R: Role-playing. The best way to get that across is that there is no official test, there is nothing in front of them to learn, read, or write and test back to us. And so a lot of it is discussion and it's open dialogue. In other words, I'll throw out a situation, the kids will respond to that. It's not totally teacher-directed. I'd say part of it, most of it is probably at the beginning, there's the initial terminology, rules, things like that. After that the kids pretty much go with their direction. There is the role-playing situations where the kids would put themselves into talking about things they know of. (#202, p. 3)

Here, a resistance or counter-influence strategy is used to deter students from substance use. In addition to receiving information about "the right decision" regarding substance use, students are taught how to avoid the influence of others (e.g., peers) who might offer them substances. According to the Raven model, the self-esteem strategy, like the harmful consequences strategy, employs elements of the information/fear appeal/expertise methods of influence.

1993 Study: Student Perspective of Programs and Program Efficacy

After we had described the basic prevention education strategies and related them to the Raven model, our research goal in 1993 was to confirm these strategies and examine their perceived efficacy through interviews and large-scale surveys with students.

Method: Qualitative (Interview) Study

Participants. Forty student focus groups with approximately 6 students in each group were selected for interviews (approximately 240 students). Based on an investigation of drug education targeted toward "at-risk" students (Brown &

D'Emidio-Caston, 1995), the principals at each of 23 schools were asked to select students for two focus groups. One group was to be composed of 6 students perceived as "thriving," and the other to be composed of 6 students perceived as "at risk for becoming substance abusers." Each principal, in choosing members for each focus group, was asked to provide a gender and ethnicity balance and to include students from all grades in each school (grades 5 and above). Because of strict anonymity limitations placed on data collection by the Department of Education, researchers were not allowed to formally record group demographics.

Districts were chosen from among those where interviews took place for the 1992 study. Twelve school districts from the 1992 sample were chosen for resampling based on two criteria: a high quality of emergent data from each district, as determined by constant comparisons, and a balance of gender, ethnicity, and socioeconomic status, as indicated by the *California Basic Educational Data System* (California State Department of Education, 1992). Of the 12 selected districts, 1 declined to participate. Of the 11 sampled districts, 1 was among the state's 8 largest districts. Three schools were randomly selected from the large district, and two schools were randomly selected from each of the remaining districts (if a district had only two schools, both were included). In sum, from the 11 districts, 23 schools reflective of the state population of schools were selected for student interviews. Usable data were returned from 22 of those schools.

Interview format. Two developmentally appropriate semistructured interview schedules were devised, one for grades 5–6 and one for grades 7–12. Schedules were devised to examine drug educational social influence processes and to determine student perceptions of program efficacy. Questions can be found in Brown and D'Emidio-Caston (1995). Interviews lasted 30–60 minutes.

Data collection. In 1993, the DATE coordinator for each selected district was notified that the district had been chosen for a second site visit. The principal selected the students. Four interviewers who had performed interviews in the 1992 study, and who had been given two days of additional training (with emphasis on developmentally appropriate and group interview techniques) performed all interviews. All passive parental permission and human-subjects requirements were followed; students were interviewed without the presence of school officials and in the same anonymous manner as the 1992 study participants. Before and after each interview, students were informed that clinical assistance was available if needed.

The returned student focus group data included 18 perceived "thriving" groups, 19 perceived "at-risk" groups, and 3 "mixed" groups (perceived "thriving" combined with perceived "at risk"). The 3 "mixed" groups, which offered a means to compare these data with "at-risk" and "thriving" groups, were from the largest school district. In one selected school district with two schools, two potential focus groups from a K–3 school could not be performed because these students were too young to meet our interview criteria; two focus groups were performed at the other elementary school. One focus group at another school district could not be analyzed due to tape-recorder failure. Twenty focus groups from 10 elementary schools, 9 groups from 6 middle schools, and 11 groups from 6 high schools formed the data corpus of 40 student groups. By combining our research goals with California's student population characteristics statistics, we sought to achieve a sample representative of California's school districts, schools, and students.

Data analysis. Seven members of the 1992 research team used the same methods they had used in 1992 to perform data analysis. Additional content analysis (Berelson, 1952) was performed to calculate the number of occurrences of similar types of student statements (defined through constant comparisons). These results are presented as exemplars and descriptive statistics in the Content Analysis section of this paper. The unit of analysis was the focus group. Reliability and validity considerations are the same as they were in Brown and D'Emidio-Caston (1995).

Findings

Students confirmed the influence strategies educators described. They also described the knowledge retained from the programs they received. Exemplars are presented from all three school levels.

High-school student(s)

I: How about the Health and Science class, what do they, what kinds of things do they teach you there?

R: What it does to your body. Like what it does to your insides, what [it does to] your brain cells. . . .

I: Do they show you like black lungs and?

R: Yeah! They show us like movies and stuff. What happens if you drink and drive. (#545, p. 4)

Middle-school student(s)

I: Just tell us about the different times that you learned about it, what you learned.

R: Oh, I learned it all last year. A lot last year.

I: What did they say?

R: Um, just about how bad they are.

I: Can you give me a real specific example?

R: That it can lead into bigger problems. I guess that's the main thing. And you hurt your family and friends and it's. . . .

I: Did they show you pictures?

R: They showed us the real stuff. (#507, p. 1)

Elementary student(s)

R: Yes, like for marijuana you like forget, you can get cancer . . .

R: You get high and forget stuff . . .

R: LSD causes hallucinations . . .

R: Well, Deputy L., he was saying that if we chew like chewing tobacco that our gums will turn all brown and will start peeling away from our teeth . . .

I: What did you think of the pictures? What other kinds of pictures did you see?

R: (Several voices speaking at once.) It was gross. It was ugly. It was nasty. (#533, pp. 2–3)

These excerpts are typical of student focus groups' responses to questions about what students learned and how they learned it. Although, in some cases, researchers found a qualitative difference in students' ability to articulate what they learned, nearly all student groups described curricula which focused on the harmful effects of substance use, denoting substance abuse. The information/fear appeal/expertise influence strategy was commonly described. For the most part, information provided by educators regarding the harmful effects of substance use was retained by students as retrievable knowledge. Students also reported receiving what educators described as self-esteem in the context of refusal skills:

R: He taught us the different ways you can walk away, like "broken record" and just saying the same things, over and over again. Just avoiding the um, situations. And what else? Um.

I: How to do a distraction, maybe?

R: Yeah!

R: Or talk about something else, change the subject. (#618, p. 3)

Different ways to say "no" are part of the retrievable knowledge gained by students experiencing DATE programs. Additionally, students often reported receiving some sort of reward, such as t-shirts—an influence strategy—intended to prevent substance use.

The instructional strategies found are consistent throughout DATE programs. Students confirm this cross-service consistency:

I: And how did you learn that it ruins their health?

R: Through the science book and DARE, through everything, everything they teach you. (#562, p. 11)

Previous DATE findings showed that almost all students in grades 5–12 experienced DATE programs (Brown & D'Emidio-Caston, 1995; Romero et al. 1994), and acquired the knowledge that educators intended them to learn. In focus group interviews, students were aware of and confirmed the information/fear appeal/expertise and reward strategies that educators described. They also confirmed the counter-influence strategy of educators attempting to influence students' decisions by teaching them how to resist others' influences. These strategies transcend types of programs, and do not depend on whether students are "at risk" for substance abuse or "thriving" in their school (Brown & D'Emidio-Caston, 1995). Survey data, which were collected simultaneously for the quantitative study, added new information and helped us further interpret the qualitative findings.

Method: Quantitative (Survey) Study

Participants. A random sample of 5,045 students in grades 7–12 who attended 118 schools from 77 California school districts was surveyed. Random sampling was achieved through a three-stage probability sample of California's students.

In Stage 1, the probability of selection was proportional to student enrollment as of Fall, 1990. The process ensured selection of the state's 11 largest districts, and representation of all geographic regions and minority populations.

In Stage 2, if the district was 1 of the 11 largest, then a school selection proportional to the district's student population in the state was made. If the district had two or more schools but was not one of the 11 largest districts, two schools were randomly selected. If a selected school had fewer than 100 students, that school was linked with a similar school at the same level in that district, in order to provide an adequate sample.

In Stage 3, 50 students were randomly selected from each selected middle school. From each selected high school, 100 students were randomly selected. Random selection of students was based on student rosters supplied by each selected school. The 5,045 surveys of grade 7–12 students were based on a 65% response rate. This response rate is typical of large-scale sampling procedures in schools (Romero et al., 1994).

Survey format. Data were collected using a standardized multiple choice survey. The survey included 109 questions designed to elicit self-reported substance-use levels, availability of and exposure to DATE programs, and perceived overall effects of program on substance-use decisions. Four questions administered to grade 7–12 students are applicable. The questions were designed to indicate perceived influence of program and educator (outcome factors), locus of control, and personal affect toward the educator (mediating factors between program and substance-use decisions). They are operationalized as students' self-reported perceptions regarding the levels of influence of educators and programs on their substance-use decisions, students' attributions of locus of control relative to drug education, and students' personal affect toward educators. Each of the four questions arises directly from the social influence literature previously discussed:

1. To assess overall program influence, students were asked, "How much was your decision to use or not use tobacco, alcohol or other drugs due to the classes and activities in your school?"
2. To assess any distinctions students made between perceptions of overall influence of programs and programmers, students were asked, "How much was your decision to use or not use tobacco, alcohol or other drugs due to people (e.g. teachers, counselors, coaches) providing classes and activities?"
3. To assess the extent of attributed internal locus of control, students were asked, "How much was your decision to use or not use tobacco, alcohol or other drugs due to deciding on your own?" Responses to Questions 1–3 were given on a 5-point Likert scale ranging from 1 (Not at all) to 5 (Completely), along with the response, "I don't know."
4. To assess personal affect toward DATE service deliverers, students were asked, "How much do you like the people who provide you with tobacco, drugs and/or alcohol classes and activities?" Responses to Question 4 were given on a 5-point Likert scale ranging from 1 (Dislike them a lot) to 5 (Like them a lot).

The survey took approximately 40–50 minutes to complete.

Data collection. Following passive parental consent, surveys were administered to groups of students by trained professionals. The survey administrator delivered uniform verbal and video instruction in English and Spanish. In addition to receiving survey completion procedures, students were told that all surveys were anonymous, and would never be traced to them. Students were informed that clinical assistance was available, if needed. Once the videotape was presented, student questions were answered, and the survey began. Students were provided with unlimited survey completion time. The administrator completed a survey transmittal form, noting the number of students present and any survey irregularities. Surveys were sealed in an envelope and returned to the research organization. A round of follow-up surveys were administered by school districts to students who were absent during initial survey administration.

Data analysis. Data were analyzed for basic descriptive statistics. In addition, four regression analyses were performed to examine the effects of other factors potentially related to the four social influence questions. Using the social influence questions as dependent variables, the factors entered as independent variables were sex; ethnicity (Afro-American, Asian, Hispanic, Native American, or Other); school grade; most frequently received course grades; substance-use levels (alcohol [most used], marijuana [less used], and inhalants [rarely used]); number of drug educational programs available (in which students could have participated); number of drug educational programs received (in which students actually participated); and the perceived positive, neutral, and negative effects of these programs. In all, 21 variables were entered into each regression model.

Findings

Students' responses to Questions 1–3 are presented in Table 1.

In Question 1, researchers asked adolescents, "How much was your decision to use or not use tobacco, alcohol or other drugs due to the classes and activities in your school?" Interestingly, 43% of students said they were "not at all" affected by the drug classes and activities in their schools. Only 15% said that their drug decisions were affected "a lot" or "completely."

Students' responses to Question 2, "How much was your decision to use or not use tobacco, alcohol or other drugs due to people (e.g. teachers, counselors, coaches) providing classes and activities?" virtually repeated the Question 1 results: 40.9% of students reported being affected "not at all" by the people who deliver DATE programs. Only 16% of students said that their drug decisions were affected "a lot" or "completely" by educators.

In response to Question 3, "How much was your decision to use or not use tobacco, alcohol or other drugs due to deciding on your own?" 58.5% of students said their substance-use decisions were either "a lot" or "completely" due to themselves.

Students' responses to the question "How much do you like the people who provide you with tobacco, drugs, and/or alcohol classes and activities?" were split (Table 2). Most students "neither like or dislike" DATE service deliverers (39%), or dislike educators "a little" or "a lot" (30%).

Following descriptive analyses, researchers performed four regression analyses using the 21 independent variables and four social influence items as dependent variables (Table 3).

For all four analyses shown in Table 3, only 8–13% of the variance of the dependent variable was accounted for. Of the 84 predictors related to the four influence items, only 4 reached the .15 significance level. Several results that are less than would be expected by chance include the following: (a) the number of positive effects reported by adolescents predicted course and educator influence on the two overall social influence items (beta = .17 and .16); (b) school grade level predicted internal attribution (beta = .19); and (c) self-reported adolescent alcohol use predicted affect toward the educator (beta = .23). One relationship was significant in the negative direction: compared with other ethnicities, Hispanics reported a lower level of internal attribution (beta = – .18). Given the low number of significant findings overall, the few individually significant beta values noted must be interpreted with caution. Overall though, results revealed no significant effect pattern of the 21 predictor variables on the four social influence items.

Content Analysis: What Students Want in Their Drug Education

After interview and survey findings were obtained, researchers sought to deepen evidence of students' perceptions of drug education, and of the ways they wanted to be educated. Interview analysis of what students wanted in their drug education showed that themes varied as a function of their age, not as a function of their designation of "at risk" or "thriving." They wanted more complete drug information, delivered through a different influence process, and more panels and talks by those who have experienced either substance use or abuse. Constant comparisons revealed that as students matured, they increasingly responded to DATE programs with an apparently negative or indifferent affect, which increased from 10% (elementary school) to 33% (middle school) to over 90% at the high-school level.

At the elementary level, 10% of the focus groups wanted more complete drug information and a different educational process:

> R: Well like I said, he'll be talking about something and then when you like ask for more information he like really doesn't want to come out like and tell us the whole thing.

TABLE 1
Percentage of Student Responses to Social Influence Questions 1–3 (N = 5,045)

Question	Not at all	A little	Somewhat	A lot	Completely	Don't know
How much was your decision to use or not use tobacco, alcohol, or other drugs due to the classes and activities in your school?	43	16.6	11.6	7.1	8.2	13.5
How much was your decision to use or not use tobacco, alcohol, or other drugs due to the people (e.g. teachers, counselors, coaches) providing classes and activities?	40.9	18.2	11.9	7.9	8.2	12.9
How much was your decision to use or not use tobacco, alcohol, or other drugs due to deciding on your own?	17.3	7.3	7.8	21.3	37.2	9.2

I: Can you give me like—can you make up an example? (Long pause, lead respondent heard making long "ah" sound.) What do you mean he doesn't want to give you more information?

R: Like he doesn't want to.

R: He doesn't want to tell you everything about it.

R: Everything like details.

I: Why not?

R: I guess that's just the way he is. I don't know.

I: How do you guys feel about that?

R: Depressed. Because if he's about talking to us about drugs and alcohol and all these kind of things he should come out with those, you know, he should talk to us the right—you know, with the whole thing, not just say a little bit and then just leave the rest behind. (#568, pp. 8–9)

Students wanted more than "a little" drug education and linked an effect with the information/fear appeal educational process: the elementary student above feels "depressed" because he thinks that the DATE educator does not tell them "the whole thing." Normally, data found in only 10% of focus groups might not be presented; however, we consider statements like this important because their frequency was found to increase as school level increased.

Thirty-three percent of middle school focus groups wanted more information from substance users or abusers. While often being sarcastic, students reported awareness of substance "abuse." They wanted more information through a different and more experiential process:

TABLE 2
Percentage of Student Responses to Social Influence Question 4 (N = 5,045)

Question	Dislike a lot	Dislike a little	Neither like nor dislike	Like a little	Like a lot
How much do you like the people who provide you with tobacco, drugs, and/or alcohol classes and activities?	23.4	6.6	39.4	12.5	18.1

TABLE 3
Prediction of the Four Social Influence Variables as a Function of 21 Adolescent Demographic, Substance Use, and DATE Programming Variables

Predictors	How much was your decision to use or not use tobacco, alcohol, or other drugs due to the classes and activities in your school?	How much was your decision to use or not use tobacco, alcohol, or other drugs due to the people (e.g. teachers, counselors, coaches) providing classes and activities?	How much was your decision to use or not use tobacco, alcohol, or other drugs due to deciding on your own?	How much do you like the people who provide you with tobacco, drugs, and/or alcohol classes and activities?
Overall R^2	.09	.09	.13	.11
Sex	.03	.015	.078	.05
Ethnicity				
Afro-American	.03	.028	−.08	−.03
Hispanic	.10	.11	−.18	−.04
Asian	.01	.03	−.10	−.08
Native American	−.0003	.03	−.03	.001
Other	.01	.03	−.04	.02
School grade level	−.07	−.06	.19*	.13
Course grades	.002	.01	−.08	−.01
Alcohol use	−.004	−.01	.04	.23*
Marijuana use	−.001	−.01	−.02	.02
Illicit substance use	.04	.02	.02	−.03
Inhalant use	−.002	−.004	−.03	.005
Individual program availability	−.05	−.05	.08	.04
Individual programs received	.02	.01	−.08	−.03
Group program availability	.06	.06	−.0006	−.02
Group programs received	.03	.04	−.06	−.06
Total number of prevention activities received	.005	.003	.03	.04
Total number of ATOD** programs received	−.005	.013	.05	.02
Number of positive effects from programs	.17*	.16*	.05	.02
Number of negative effects from programs	.008	−.008	.009	.04
Number of neutral effects from programs	−.095	−.09	.003	−.05

Notes: Beta values are shown.
*Significant beta coefficient of .15 or greater.
**ATOD = Alcohol, tobacco, and other drugs.

I: What do you think that teachers or schools could do to really help kids with this stuff? If it could be really helpful, what?

R: Um, try it and see if they like it! (Being facetious?)

I: Let them try it? I don't think that's gonna happen!

R: And I doubt that they would like it.

I: Yeah? Okay. What else can schools really do?

R: They should like, they should have a lot of things like that.

I: A lot of things like?

R: Like drugs and stuff. Like regular users and stuff like that. Someone that's had what it can do to your body and stuff like that.

I: Uh huh?

R: Keep you out of class, too!

R: They should bring like people that have done tobacco and like got messed up with their job or something! Stuff to show 'em that how you handle it. (#606, pp. 20–21)

I: Um, do you think that any of the information that you got at school, at this school has influenced you either way in your own decision? As you get older and have to make those choices?

R: Not really.

I: You don't think that the class really had much impact?

R: No.

I: No? How about you? Do you think?

R: Yes. It had an impact.

I: It what?

R: They said it was like bad for you!

R: You just tell 'em that it's bad for you!

I: Oh, bad for you! I'm sorry! I didn't understand. Um, who do you think ought to be teaching you about alcohol and tobacco and other drugs?

R: Somebody who has had a real problem with it.

I: Okay, and does still have a problem?

R: No! They got over it.

I: Somebody got over it?

R: Probably someone who still has a drug problem. (#551, pp. 6–10)

Middle school sarcasm was often linked with a statement that DATE programs did not affect them (I: "Did it have an impact?" R: "No") or sarcastically describing a negative impact ("Um, try it and see if they like it!" "Keep you out of class, too!" and "You just tell 'em that it's bad for you"). Here, perceptions of program inefficacy emerge through sarcasm directed at DATE.

Linked with these statements, though, is the desire for more information delivered by substance users ("regular users") and abusers (people who have a "real drug problem") from outside the school. Rather than receiving "just the facts," students wanted to understand the experience of substance use and abuse. While in isolation, sarcasm might merely indicate typical adolescent development, these students' specific links to influence processes seem to indicate their current disposition toward their DATE education.

By linking program inefficacy with desired program changes, well-articulated statements from interviews #530 and #531 accurately reflect the high school data:

R: Yeah, but the Health teacher doesn't really know, you know.

R: Oh yeah, the Health teacher doesn't know. He's reading from the book.

R: Yeah, he's just reading from the book and if they had brought someone in that knew and that like went through it I think it would be a lot better.

R: It's kind of like everybody knows that drugs and smoking are bad for you so it's not like a teacher can sit there and can pound it into you so you're not going to do it. I remember like in sixth grade our PE teacher would sit there (inaudible) and (inaudible) smoking, they all went along with it or whatever but it's like you are going to do it if you want, you're not going to listen to a teacher or a parent. If my parents sit there and say all the time, stop smoking, stop doing this, don't do anything, don't do any drugs, don't do anything bad when you go out. So they can say as much as they want, your best friend (inaudible), but you're only going to listen to yourself, it's not what they teach you, if you know it's bad.

I: Using or not using has something to do with your own decision?

R: (Loud responses from many voices.) Yes. (#531, pp. 13–15)

In statements such as "the Health teacher doesn't really know" and "if they had brought someone in that knew and that like went through it I think it would be a lot better," 91% of high school focus groups linked program inefficacy and a lack of educator credibility with desired changes: to move away from "no-use" fear appeal methods toward identifying in some way with the educator (i.e. a referent student/educator relationship) who provides credible information.

At first, the next passage seems to indicate that students want more of a component that already exists in drug education: addicts sharing their experience of harmful consequences with students. However, when interviewers probed, we found that they wanted more than that:

I: Who do you think should be teaching you about alcohol, tobacco, and drugs?

R: Someone outside the school.

I: For example?

R: I don't know, yourself.

R: No, I think someone who has been through it. (Several voices speak at once, sounds as if they are in agreement with this statement.)

R: Someone outside the school.

I: Recovering addicts?

R: They know the most because they have been through it. They know how it feels.

R: They only tell you—like their stories are interesting and you want to hear about it. You know when you're sitting in the class and you're reading out of a book, you know, cigarettes cause emphysema, it's like "that's great."

R: It's boring.

R: Yeah, so it's so boring, just like the other school classes, I mean, but we already know about it and that's not going to help us. We already know about it and it's not going to do anything.

I: So you agree with him that it needs to be an experiential thing.

R: (Several voices at once.) Yes.

R: If somebody does drugs and if a teacher says it does this to you, you're not going to stop unless something happens to you or you see something happen to someone else, you know, one of your close friends or something and then you think about it, because when you're doing drugs or drinking or whatever, you don't think anything is going to happen to you, you just think, you know. (#531, pp. 28–29)

Students link a lack of influence and credibility ("but we already know about it and that's not going to help us . . . it's not going to do anything") with what they want to see: "someone outside the school"; "someone like yourself"; (the interviewer—not a substance abuser) or "someone who has been through it." The student desire for expert influence from substance users and substance abusers reflects a wider service range than is found in typical educational programs. The following best summarizes the student view of the desired educational process:

R: I just want to say that I guess the best education would be the education that would allow you to evaluate yourself and allow you to evaluate your own personal beliefs and your morals and your values and take a strong look at what you're feeling and how you might have the possibility to be a substance abuser. (#530, p. 31)

In two ways, high-school qualitative data from grades 9–12 confirm previously reported quantitative results from grades 7–12 (Jick, 1979). First, qualitative data as exemplified above support the results in Table 1, in which 41% of the students said that the individuals delivering DATE programs did not affect them "at all." Second, qualitative data in which students internally attribute their substance-use decisions ("you're only going to listen to yourself") support the finding that 59% of California's adolescents believed their substance-use decision was either "a lot" or "completely" due to themselves.

Discussion

Limitations and Generalizability

The conclusions of this study are limited by our research goals and how we attempted to achieve them. Our first goal was to describe the program delivery process; the second was to determine how programs influenced student

substance-use decisions. We did not directly determine program effects on youth substance use.

Because the 1992 qualitative data came from a primarily random sample of school district key informants at all levels of California's educational system, we generalize the results to California school districts. The 1993 qualitative findings, however, are from districts that were purposely reselected from a previous randomly selected sample; schools that were randomly selected; and students who were purposely selected. Even though we balanced the student sample at the district and school levels, we do not know whether a statewide representative student sample was achieved, because qualitative demographic data from the students could not be collected. Thus we cannot generalize from the qualitative sample alone to the entire population of California's students.

Student qualitative findings, then, are bounded by the extent to which they are linked with quantitative findings and other research. Because the quantitative data were acquired from a large-scale random probability sample, these results can be generalized to the state level. We found confirmation of the results (qualitative results between school district personnel and students; qualitative and quantitative results between student interviews and student survey results), and believe that these findings are representative of California's students. Finally, to the extent that programs with standardized curricula like DARE are prevalent, we can deduce that the methods of influence are also prevalent, and thus this research is linked with nationwide research.

Drug Education in California: Influence on Student Substance-Use Decisions

No single finding adequately describes the effects of DATE upon students' substance-use decisions. With high program implementation levels, this large-scale, multi-modal evidence suggests that drug, alcohol, and tobacco education programs had no positive influence on a majority of students' substance-use decisions, and had other effects counter to those intended. This is especially true during the period when youth are faced with substance-use decisions, grades 7–12.

Qualitatively, as grade levels increased, so too did student dissatisfaction with drug education programs. Given qualitative evidence suggesting that students responded to the interview questions in a thoughtful way by articulating logically coherent perceptions about their lives and drug-education experiences, it is reasonable to believe them when they say they want complete drug information without fear appeal, delivered by someone from outside the school who is (or was) a substance user or abuser.

Quantitatively, over 40% of California's grade 7–12 students felt that their substance-use decisions were "not at all" due to either the people they heard or the programs they received. At most, only 16% of students felt influenced either "a lot" or "completely" by these programs. Seventy percent of students described a neutral to negative affect toward service deliverers, with about 30% saying that they disliked DATE service deliverers "a little" or "a lot." Our reporting of these results is clearly conservative: if students who responded "I don't know" were not counted, results would be more skewed toward the negative.

Regression findings using social influence items as dependent variables revealed that only 8–13% of the variability in survey responses to social influence questions was explained by 21 different variables, including ethnicity, gender, grade level, course grades, program availability or participation, and substance use levels. The assumption then, that students' responses to social influence questions were caused by these factors is not supported by the evidence. Also, because each social influence item has been shown to be predictive of behavior, there is little evidence supporting the claim that low R^2 results are owing to the limited number of social influence survey items. Three issues and related literature are discussed: the role of social influence in school-based drug education; cognitive dissonance associated with school-based drug education; and adolescents' capabilities to assess risks.

The Role of Social Influence in School-Based Drug Education

The results of this study support other research in showing that drug education programs include program elements from each of the three traditional primary prevention strategies: information, affective, and social influence (Ellickson, 1995). In contrast to the findings of Humphrey et al. (1988), none of the primary DATE influence methods appeared to affect

youth's attitudes or behaviors significantly. In other research, influence methods like those used in DATE have been found to result in negative perceptions:

> Perhaps we recognize the expertise of influencers, but distrust them and assume they are using their superior knowledge for their own best interests, not ours. Or perhaps we see the agent as someone whom we dislike, someone from whom we would prefer to disidentify ourselves. (Raven, 1993, p. 235)

If negative perceptions of influencing agents occur then "sometimes we may do exactly the opposite of what the influencing agent does or desires that we do [what Hoveland, Janis, and Kelley (1953) called the boomerang effect]" (p. 235). We cannot state definitively that DATE programs cause a boomerang effect; yet much of our evidence suggests that drug education may facilitate the formation of negative effects ranging from a negative perception of educators to the boomerang effect. Within this range, the most frequently described effect is a particular psychological tension, discussed below.

Cognitive Dissonance Associated with School-Based Drug Education

Many students interviewed described a critical cognitive inconsistency. Inside school, they receive information delivered from a variety of experts (such as uniformed officers) intended to arouse their fears; this includes the information that any substance use is equivalent to substance abuse, and that any use has dangerous consequences. They are taught how to refuse substances if offered them. Outside school, students report seeing people using a variety of substances, at varying levels, in different social contexts, and with different perceived outcomes. Qualitative evidence suggests that cognitive dissonance (Festinger, 1957) is linked with student descriptions of a state of tension or "depression."

Many students appear to resolve their cognitive dissonance by linking their perception of drug education with the new cognition that educators were lying to them about the information they provided or were not interested in helping those students they perceived as having a substance abuse problem ("They lie to you so you won't do it!" [#508, p. 10]; "I don't think the schools are for like helping, it's just for getting the bad kids out" [#531, p. 21]). Our survey results are also consistent with this contention: a neutral to negative affect toward educators (70%), a high level of internal locus of control (60%), and a low level of perceived educator and program influence on substance-use decisions (15–16%). Beginning in middle school, the resolution of cognitive dissonance appears to result in many students asserting their own decision-making power and disidentifying with educators and programs. This assertion is consistent with Eccles et al. (1993), who found that, particularly in the elementary/middle school transition, when students perceive themselves as being able to make increasingly complex decisions, their power to do so is limited by the school social environment. What then are adolescents' skills to make complex decisions?

Adolescents' Abilities to Assess Risk

It has been shown that youth are as competent as many adults to make decisions about risks (e.g., substance use or sexual practices), taking into account family, peer, and media influences (Baumrind & Moselle, 1985; Fischhoff, 1975, 1992; Jessor, 1993; Jessor & Jessor, 1977; Liotts, Jason, & DuPont, 1983; Quandrel, Fischoff, & Davis, 1993). The results of this research do not indicate that youth are mature decision-makers; the indications are, however, that as they age, youth can judge risks associated with their lives soundly. One part of normal and increasing developmental sophistication may be experimental substance use (Newcomb & Bentler, 1988; Shedler & Block, 1990). Most programs do not appear to reflect these perspectives, perhaps explaining youth's negative psychological disposition toward such programs.

Conclusions

The Failure of the No-Substance-Use Message

In 1981, Chng concluded that "drug education in the schools has failed . . . the goal of abstinence [is] one of the contributory factors for this 'failure' " (p. 13). Despite 25 years of cumulative evidence—found here in the students' voices, and elsewhere in variable student substance-use rates, meta-analyses, and controlled studies all suggesting that students understand and reject the current no-use messages communicated in DATE programs—many persist in

delivering such programs. Let us be clear: we do not advocate programs promoting substance use. It is nonetheless becoming evident that our failures are not those of program implementation, but rather of program conceptualization and practice, and that the no-substance-use message contributes to drug education program failure.

A Conceptual Shift in School-Based Drug Education

In 1973, the National Commission on Marihuana and Drug Abuse called for a drug education moratorium, but "prevention survived, though, not because of any demonstrated success, but simply because the alternatives did not seem so promising for the long term either" (Haaga & Reuter, 1995, p. 9). Given unprecedented expenditures on drug education programs, the programs' limited efficacy, and students' assertions of what they need from drug education, we need a conceptual shift in how we view students and in how we deliver programs. As part of educational restructuring efforts, such a conceptual shift would be realized by educating students to become aware of, and take responsibility for, patterns in their own thinking, feeling, and behavior, as part of groups and in various social contexts (Brown, 1996; DeMeulle & D'Emidio-Caston, 1996). These social contexts include many substance-using environments, not only abusive ones or ones which may inevitably evolve into abusive ones; the orientation of policies and programs (that all substance-using environments are abusive when these are not the dominant contexts) may help explain current substance-use trends. The DATE evidence at least suggests we should implement and evaluate programs emphasizing the decision-making capabilities of the majority of youth who experiment with substances, provide credible information, serve to reduce the potential harm resulting from substance use, and offer assistance for the minority of youth who need it.

Our multi-modal descriptive evidence establishes a foundation for exploring the relationship between social influence and adolescent substance use. Drug education programs need to be reconceptualized to address the capabilities, not just the inabilities, of our youth.

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