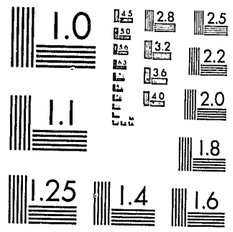

National Institute on Drug Abuse

PREVENTION RESEARCH REPORT

THE NAPA DRUG ABUSE PREVENTION PROJECT: RESEARCH FINDINGS

U.S. DEPARTMENT OF HEALTH AND HUMAN SERVICES
Public Health Service
Alcohol, Drug Abuse, and Mental Health Administration

This report was written by the research staff of the Napa Experiment, Napa, California, under grant number R18 DA 02147 from the National Institute on Drug Abuse to the Pacific Institute for Research and Evaluation. Dr. Marilynn B. Brewer, Professor of Psychology, UCLA, assisted in the development of the overall research design and methodology. Three administrators of the Napa Valley Unified School District--John Hill, Chief Psychologist, Chet Cooley, former Director of Special Services, and Robert Hansen, District Superintendent--gave advice and assistance with the project's data collection efforts. William Bukoski, Ph.D., served as the NIDA Project Officer.

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Contents

Prevention Research Reports are issued periodically by the Prevention Research Branch (PRB), Division of Clinical Research, National Institute on Drug Abuse (NIDA). The Branch plans, develops, and administers research studies assessing both the etiology of drug abuse and the effectiveness of a broad spectrum of traditional and innovative prevention and early intervention approaches. PRB encourages research and provides consultation to the scientific community. *Prevention Research Reports* feature articles and reports of research findings which may include state-of-the-art reviews; innovative prevention models; comprehensive etiological analyses; or prevention outcome studies. Through this publication, the Prevention Research Branch seeks to disseminate scientific information to the field.

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Introduction

This report describes the Napa Project, a demonstration research study conducted by the Pacific Institute for Research and Evaluation from August 1978 through June 1983, funded by the National Institute on Drug Abuse. The primary purpose of the project was to evaluate the effectiveness of seven school-based substance abuse prevention strategies. The project sought to answer the question, "What are the effects of promising school-based prevention strategies when they are intensively and carefully implemented under favorable circumstances?"

One or more separate evaluations of each strategy were conducted during the course of the project. In other studies, called "cohort" studies, two or three strategies were provided to the same group of students over 2- or 3-year periods. In the cohort studies, the cumulative effects of the strategies were measured each year. The project sought to achieve rigor and comprehensiveness in all aspects of the evaluation research, and extensive resources and attention were devoted to this objective. All studies employed experimental or quasi-experimental designs in which students who received the strategies were compared with students who did not.

The following sections describe the strategies and discuss the designs, results, and implications of the various studies. Complete reports on the individual studies are listed in the appendix.

Interventions

Background

In the 1970s, affective education and alternatives[1] programs became increasingly popular as substance abuse prevention strategies. The rise of these generic[2] strategies accompanied the decline in popularity of drug-specific informational approaches that were heavily laden with scare tactics. Affective education was usually justified on the basis of the numerous correlational studies that found an association between social competencies, self-attitudes and values, and drug abuse (e.g., Ahlgren and Norem-Hebeisen 1979; Smith and Fogg 1978). Although relevant research was lacking, it was generally believed that these attitudes and behaviors precede and thereby mediate drug abuse. Therefore, many affective education and alternatives strategies focused on teaching intrapersonal and interpersonal competencies to children and on creating environments that respond to children's emotional and social as well as their cognitive needs.

The curricula of affective education programs include self-esteem building, interpersonal skill development, and decision-making/problemsolving techniques. They also include methods for restructuring academic classroom activities in ways thought to promote learning and positive relationships. Common to the various approaches is the assumption that teachers should be responsive to the affective as well as cognitive needs of students. Thus, teacher inservice training is a staple of affective development programs for students.

The teaching of affective skills has been recently introduced in anticigarette smoking educational programs. These programs provide information about drugs and teach skills for utilizing and acting on the information (e.g., decisionmaking and assertion skills). Recent evaluations suggest that such courses prevent the onset of cigarette smoking among sixth and seventh graders (Arkin

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1 Alternatives are defined as "constructive involvements that act as meaningful options to drug and alcohol use" (Schaps and Slimmon, 1975) and are based on the hypothesis that drug abuse can be prevented by providing more fulfilling experiences and activities.

2 The terms generic, indirect, and nonspecific all refer to prevention strategies that do not directly address the topic of substance abuse. Instead, they focus upon factors believed to underlie drug abuse and other problem behaviors.

et al. 1981; Botvin and Eng 1980; Botvin et al. 1980; Evans et al. 1981; Flay et al. 1983; Hurd et al. 1980; McAlister et al. 1980; and Perry et al. 1980). Moskowitz (1983) contrasts these courses and their evaluation findings with the present research.

Theoretical Model

Underlying the basic approach adopted by this project is a hypothesized Change Model (figure 1), a causal chain linking prevention strategies to predicted reductions in drug use intentions and behaviors via various intermediate outcomes. This Change Model shaped selection of specific prevention strategies, outcome variables and measures, and data analysis plans.

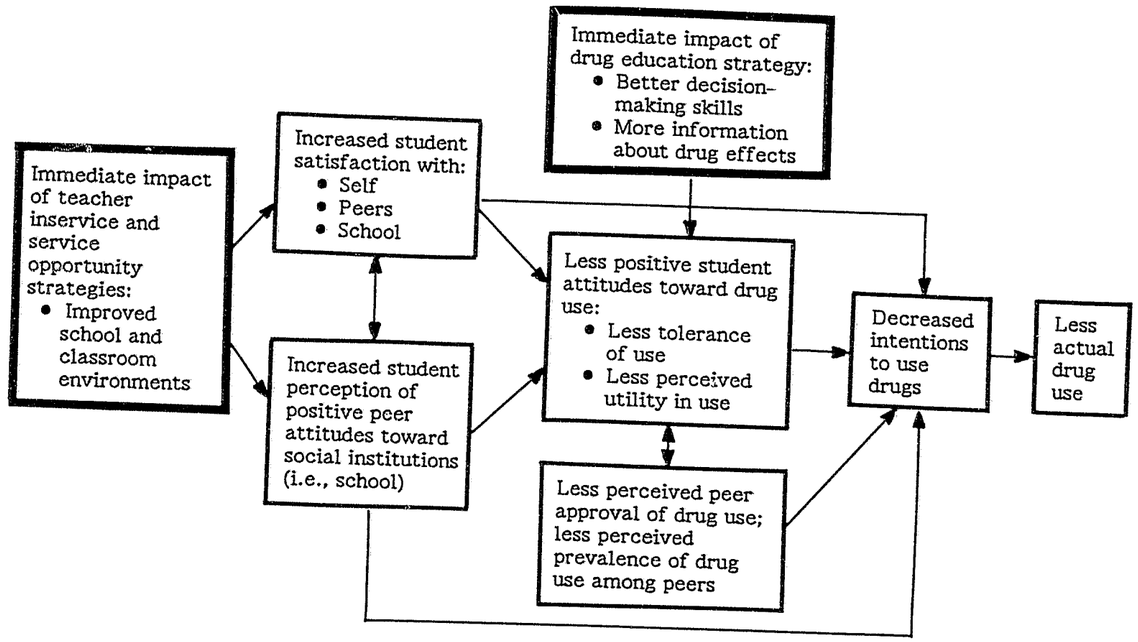
The Change Model is derived from research by the Jessors and by Fishbein. Jessor has described a multivariate model for predicting deviant or problem behavior, including the prediction of adolescent alcohol and marijuana use (Jessor and Jessor 1975; Jessor et al. 1973; Jessor et al. 1972). The model consists of three types of variables:

- Personality variables such as expectations regarding achievement, alienation, locus of control, and attitudes toward deviance
- Social environment variables such as the presence of deviant role models, the presence of consensual norms regarding appropriate behavior, and parental supports and controls
- Behavioral variables such as church attendance, school performance, and various problem behaviors.

Secondly, Fishbein's general equation for predicting both behavioral intentions and actual behavior (Ajzen and Fishbein 1977) has been applied to the prediction of adolescent alcohol use (Schlegel et al. 1977). This model postulates that behavior is a function of intentions to act, which in turn is predicted by attitudes toward the particular behavior and perceived norms regarding the behavior.

The Change Model integrates and modifies the Jessor and Fishbein models. It describes a causal sequence beginning with program effects on the school environment (analogous to Jessor's social environment). According to the model, improved school and classroom climate should in turn increase students' satisfaction with self, peers, and school (analogous to Jessor's personality system). Improvements in the school environment should also strengthen perceived positive peer attitudes toward school. These attitudinal and normative shifts should be followed by changes in attitudes toward drug use and perceived peer norms proscribing deviant behavior. Students should become less tolerant of, and perceive less

Figure 1. Hypothesized change model



utility in, drug use. Finally, these developments should result in decreased intentions to use drugs and, ultimately, in less actual use.

The Change Model, then, recognizes the importance of both "distal" factors (i.e., Jessor's systems)- characteristics of the general school environment and general dispositional and behavioral characteristics of the individual- and "proximate" factors (Fishbein's components)- students' intentions and attitudes regarding drug use specifically and their perceptions of prevailing norms regarding use.

Strategies

Each strategy selected for study met several criteria. First, each was consistent with a general approach that emphasizes school and peer group influences and individual competencies and attitudes. Each was representative of current school-based prevention programs in affective education, alternatives programs, or drug education. All could be implemented at moderate cost and without major changes in the priorities and constraints under which most public schools operate.

Where possible, established, packaged strategies were selected. Otherwise, project staff developed the curriculum for a strategy using elements from existing curricula and program materials.

Four of the strategies were inservice teacher training courses that focused on classroom and individual factors thought to influence attitudes toward school, self-esteem, and the development of social competencies. None of these courses addressed the topic of drug use. The inservice teacher training strategies were designed to improve the classroom management skills of teachers and to provide a more positive and socially rewarding learning environment within the classroom. The strategies are described briefly below; more detailed descriptions of each strategy are provided in the reports listed in the appendix.

- *Magic Circle*--teachers were trained to lead structured small-group discussions on particular topics in their classrooms (grades 3-4).

- *Effective Classroom Management-Elementary* (ECM-Elementary)--teachers were taught various communication skills, discipline techniques, and self-concept enhancement techniques (grades 4-6).

- *Effective Classroom Management-Junior High* (ECM-JH)-communication, discipline, and self-concept enhancement skills were adapted for teaching in the junior high environment (grades 7-9).

- *Jigsaw*--teachers were taught to organize classrooms into cooperative learning groups of five or six students in which each student teaches an essential piece of the regular curriculum to the other group members (grades 4–6).

Two alternatives strategies were offered as elective academic courses to junior high school students. In the courses, students were taught skills and provided opportunities for helping peers or younger children. The courses did not address the topic of drug use; instead, they sought to strengthen self-concepts and to teach social competencies. The alternatives were:

- *Cross-Age Tutoring*--students tutored younger children on a regular basis in reading or other academic subjects (grades 8–9).
- *Operating a School Store*--students ran a school store on their campus, selling school supplies and snacks, while learning relevant business skills in a related academic course (grades 8–9).

The final strategy was a drug education course that taught social competencies and drug information to seventh graders. In the final version of the course, students were taught Maslow's (1980) framework for understanding motivation; learned a systematic decisionmaking process; analyzed techniques used in commercial advertising; learned assertiveness skills for dealing with peer pressure; and practiced setting personal goals. Toward the end of the course, students were provided information about tobacco, alcohol, and marijuana, in response to their written questions. Students also applied the social skills in considering drug use issues.

Implementation

Process data gathered from students and teachers during initial testing of the strategies were used to revise curricula and procedures for subsequent implementation. The ECM and Drug Education strategies were substantially revised, and the other strategies were modified in minor ways. Unless otherwise indicated, the following descriptions refer to the final versions of the strategies.

Teachers were trained in each inservice strategy during 9 to 12 weekly 2-hour workshops. Several times during and after training, the trainer observed each teacher's use of the inservice skills in the classroom and provided additional encouragement and guidance. All of the inservice courses combined lectures, discussions, readings, simulations, and practice exercises. At each training session, previously taught skills were reviewed, implementation problems were discussed, and new skills were introduced and practiced. All teachers who completed the training received a stipend, and graduate credit was offered.

The first version of the Cross-Age Tutoring course was offered each semester to eighth and ninth grade students and was taught by a junior high school teacher assisted by project staff. The second version was offered to eighth grade students only and was taught by project staff. The class met daily during the entire semester. Tutors traveled to nearby elementary schools to work one-on-one or in small groups with younger students. They also met as a group to refine skills, discuss problems, and plan schedules. Project staff closely monitored the tutors' activities at the elementary schools. Tutors received grades and academic credit for their participation in the course.

The School Store class met daily and was taught by a junior high school teacher with assistance from project staff. Teaching methods included lectures, demonstrations, self-guided learning modules, experiential activities, simulations, and role-playing. Students volunteered some of their own time to work in the store. Each student participated in most aspects of store operations, including sales, marketing, and accounting.

The 12 sessions of the Drug Education course were taught by a project staff member once a week in social studies classes. Instruction included lectures, demonstrations, experiential activities, role-playing, and audiovisual presentations.

Evaluation Methods

The seven strategies were evaluated individually and in combination in 12 studies. All studies assessed the implementation of the strategies as well as their effects upon students. The methods used in conducting the process and outcome evaluations are described in this section.

Process Evaluation

In each study, process data were gathered to monitor implementation of the strategy and to assess participants' reactions.

In monitoring the inservice training sessions, teachers' attendance at each session was recorded; anonymous teacher ratings of each session were collected; teacher participation in the sessions was observed; and the agenda, content, and procedures of each session were documented. At the end of the training and at the end of the school year, the teachers were surveyed regarding their overall assessments of the course, the trainers, and the followup classroom visits by the trainers. Frequency and quality of classroom implementation of the strategies were monitored through several procedures: questionnaires completed by teachers at midyear and year-end; classroom observations conducted by the trainers; classroom observations conducted by project research personnel; and in the case of Magic Circle and Jigsaw, weekly implementation logs provided by teachers.

Participation in the alternatives strategies was monitored through a trainer's observations of class sessions, tutoring sessions, and student activities in the school store. Also, students were surveyed at the end of each semester regarding their evaluations of the courses and their assessments of the tutoring or school store experiences.

The procedures and content of the drug education course were documented, and three surveys of students' reactions to the course were conducted--after the fourth, seventh, and final sessions.

Outcome Evaluation

Table 1 summarizes the schedule of intervention and testing for each of the 12 evaluation studies. The letters following each study

identify the relevant reports as listed in the appendix. Table 1 shows:

- Average number of students per group used to assess main effects of interventions
- Major testing and intervention activities in each project year
- Students' grade level in each year of the study.

Also listed in table 1 is an annual drug survey, administered each spring to representative samples of junior and senior high school students enrolled in the school district.

Outcome evaluations of the inservice strategies and the cohort studies employed schools as the unit of assignment to treatment condition. Studies of Cross-Age Tutoring and School Store used random assignment of individual students to condition. Studies of Drug Education involved random assignment of classrooms to condition.

Each student in the control and experimental groups received a pretest and posttest that assessed the following:

- The impact of each strategy on affective variables that were hypothesized to be causally related to substance abuse (see figure 1 and table 2)
- The impact of the strategy upon specific measures of drug use--attitudes toward use, intentions to use, lifetime use, and current use (see table 2).

Followup testing was performed at the end of a second year in several of the studies. These followup assessments helped to determine whether initial effects of the strategy were maintained, or whether there were effects that became evident only after some time had passed.

Outcomes were assessed with the measures listed in table 3. All of the measures except one (drug knowledge) demonstrated adequate internal consistency reliability (Moskowitz et al. 1979, 1981). Furthermore, the survey administration procedures utilized precoded questionnaires and did not introduce respondent bias as compared to an anonymous procedure (Malvin and Moskowitz 1983).

The data for each study were subjected to multiple analyses. In several elementary school studies and in the drug education studies, student data were first aggregated into classes and the class-level data were analyzed or a hierarchical analysis was conducted. In the other studies, student-level data were analyzed. Separate analyses were usually conducted for each sex and grade level. The treatment groups were compared at pretest by analyses of variance to examine potential biases due to initial nonequivalence and to

Table 1.--Summary of studies

Study	Initial student n per group	Interventions and student testing activities		
		1 year (1978–79)	2 year (1979–80)	3 year (1980–81)
Magic Circle (N,O)[a]	266	Pretest (3)[b] Magic Circle Posttest (3)	Magic Circle Posttest (4)	
ECM–Elementary I (E)	535	Pretest (4–6) ECM–E1 Posttest (4–6)	ECM-E1 Posttest (5)	Posttest (6)
ECM–Elementary II (F,G)	268	Pretest (4)		
ECM–Junior High (H, I, J)	1033	Pretest (7–9) ECM–JH Posttest (7-9)	ECM–JH Posttest (8–9)	ECM–JH Posttest (9)
Jigsaw I (K, L)	490	Pretest (4–5)	Pretest (4) Jigsaw Posttest (4–6)	Posttest (5–6)
Jigsaw II (M)	240			
Cross–Age Tutoring (D)	29	Pretest (7–8)	Pretest (4) Cross-Age Tutoring Posttest (8–9)	Jigsaw Posttest (5) Posttest (9)
School Store (D)	28	Pretest (7–8)	School Store Posttest (8–9)	Posttest (9)

Table 1.--Summary of studies (continued)

Study	Initial student n per group	Interventions and student testing activities		
		1 year (1978–79)	2 year (1979–80)	3 year (1980–81)
Drug Education I (A, B)	250	Pretest (7–8) Drug Education Posttest (7–8)	Posttest (8–9)	
Drug Education II (C)	237			Pretest (7) Drug Education Posttest (7)[c]
Cohort I (R) (contains Magic Circle and Jigsaw II studies)	266	Pretest (3) Magic Circle Posttest (3)	Magic Circle Posttest (4)	Jigsaw Posttest (5)
Cohort II (S, T)	343		Pretest (7) ECM-JH Drug Ed Posttest (7)	ECM-JH Cross-Age Tutoring School Store Posttest (8)
Annual Drug Survey (U,V,W)	2500	Survey (7–12)	Survey (7–12)	Survey (7–12)

[a] Letters in parentheses refer to study reports listed in the appendix.
[b] Numbers in parentheses refer to grade levels of participating students.
[c] An additional posttest was administered in the fall of 1981.

Table 2.--Variables measured in studies of individual prevention strategies

Outcome variables	Strategies						
	Magic Circle	ECM Elementary	ECM Junior High	Jigsaw	Cross-Age Tutoring	School Store	Drug Education
Classroom/school environment							
Teacher attitudes/satisfaction	x	x	x	x			
Faculty cohesiveness	x	x	x	x			
Affective teaching climate	x	x	x	x			
Attitudes toward school	x	x	x	x	x	x	
Personal satisfaction							
Academic self-esteem	x	x	x	x	x	x	
Social self-esteem	x	x	x	x	x	x	
Attitudes toward peers	x	x		x			
Locus of control	x	x	x	x	x	x	
Academic achievement	x	x	x	x	x	x	
Attendance	x	x	x	x	x	x	
Behavior problems	x	x	x	x	x	x	
Perceived norms/social support							
Perceived peer attitudes toward school	x	x	x	x	x	x	
Perceived peer attitudes toward drugs	x	x	x	x	x	x	x
Perceived prevalence of drug use	x	x	x	x	x	x	x
Drug attitudes/beliefs/knowledge							
Acceptance of licit and/or illicit use	x	x	x	x	x	x	x
Perceived utility of drug use	x	x	x	x	x	x	x
Knowledge regarding drugs			x				x
Intentions regarding drug use			x		x	x	x
Behavior regarding drug use	x	x	x	x	x	x	x

Table 3.--Outcome variables and measures

Variable	Measure
Teacher attitudes	Project-developed scales measuring role importance and role effectiveness (T)
Teacher satisfaction	Adapted from Purdue Teacher Morale Inventory (T)
Faculty cohesiveness	Adapted from Teacher Cooperation Scale of the Teacher Attitude and Classroom Climate Questionnaire and from Intimacy Scale of the Organization Climate Description Questionnaire (T)
Affective teaching climate	Adapted from Interpersonal Relationships with Pupils and Authority and Control Scales of the School Sentiment Index and Teacher Affiliation Scale of the Self-Observation Scales (S)
Attitudes toward school	Adapted from School Affiliation Scale of the Self-Observation Scales (S)
Academic self-esteem	Adapted from Scholastic Scale of the Self-Appraisal Inventory and the Self-Observation Scales (S)
Social self-esteem	Adapted from Social Confidence Scale of the Self-Observation Scales (S)
Attitudes toward peers	Adapted from Peer Affiliation Scale of the Self-Observation Scales (S, E)
Locus of control	Adapted from I+ and I- Scales of the Intellectual Achievement Responsibility Questionnaire (S)
Academic achievement	Total Reading and Total Math Scales of the Stanford Achievement Test (A,E)
	Grade point average (A,J)
Attendance	School district and school absenteeism records (A)

Table 3.—Outcome variables and measures (continued)

Variable	Measure
Behavior problems	Project-developed items measuring frequency and seriousness of classroom misbehavior (T,E)
	School discipline records (A,J)
Perceived peer attitudes toward school	Adapted from eight instruments measuring attitudes toward school (S)
Perceived peer attitudes toward drugs	Project-developed scale measuring the degree to which students think their peers support the use of drugs (S)
Perceived prevalence of drug use	Project-developed scale measuring the degree to which students think their peers use different drugs (S)
Acceptance of licit and illicit drug use	Project-developed scales assessing attitudes toward selected substances (S)
	Adapted from three instruments measuring attitudes toward licit and illicit drugs (S,J)
Perceived utility of drug use	Project-developed scales measuring perceived benefits and costs of use of selected drugs (S)
Knowledge regarding drugs	Project-developed scale measuring drug knowledge (S,J)
Intentions regarding drug use	Project-developed items measuring drug anticipated use of various drugs (S,J)
Behavior regarding drug use	Project-developed items measuring lifetime use and current use of various drugs (S)

NOTE: Letters in parentheses refer to information furnished by teachers (T), by students (S), or abstracted from archival records (A). Information obtained only in the elementary studies (E) is further identified, as is that obtained only in the junior high studies (J).

attrition. The groups were contrasted at posttest by analyses of covariance that controlled for some pretest differences. Additional analyses examined the effects of differential exposure to the intervention utilizing multiple regression or analysis of variance.

Results

Inservice Strategies

Between 54 percent (Jigsaw) and 93 percent (Magic Circle) of eligible teachers voluntarily enrolled in the inservice training courses. Only a few of those enrolled failed to complete the training, and the participating teachers rated all of the inservice courses highly with respect to organization, usefulness, level of enjoyment, and interest. The teachers rated the trainers as knowledgeable, personable, and effective. They consistently attended the training sessions, and they participated enthusiastically.

Regarding classroom implementation, the teachers' self-reports indicated that the skills taught in the training were useful in their classrooms and that they believed they used the skills proficiently.[3] With Magic Circle, classroom observations showed that most teachers were able to conduct Circle sessions adequately. Teachers' logs indicated that on the average, students participated in one Circle per week. With ECM, researchers' observations failed to show classroom use of many skills. With Jigsaw, implementation averaged 2 hours per week according to teachers' logs, but observations showed that only a third of the teachers applied this strategy without modifications that substantially reduced or eliminated peer teaching and interdependence among students.

Outcome evaluation results showed that none of the strategies had consistent effects on teachers' satisfaction with teaching, faculty cohesiveness, or teachers' attitudes toward educational objectives associated with each strategy. Nor did the studies show any of the strategies to have a pattern of significant effects on student outcomes. None had consistent effects on the mediating or the drug-specific variables. Furthermore, no patterns of positive effects were revealed by natural variation analyses that examined outcomes for students exposed to relatively high quality and/or quantity of implementation as compared with other students.

[3] An exception was the problemsolving skills taught in the first version of the ECM strategies. The teachers found these too complicated and time-consuming to master or use, and they were replaced with discipline skills in the revised versions of the strategies.

Alternatives Strategies

Process evaluation results showed that students rated the Cross-Age Tutoring and School Store courses favorably, compared with other elective courses. Students completing the courses reported that they had learned much, that they enjoyed the practical experience, and that they believed their efforts had been helpful to others. However, tutors tended to dislike their weekly class meetings, describing them as irrelevant, repetitive, and boring. Nearly one-fourth of the tutors dropped out of the course during the semester. Students in School Store reported liking both the daily class sessions and their work in the store. All completed the course. (In the subsequent Cohort II study the Cross-Age Tutoring course was revised, and both courses were rated highly by students.)

Neither course showed a pattern of significant effects on student outcomes. In particular, there was little evidence for enhancement of students' attitudes toward themselves or school, as originally anticipated. Followup testing after 1 year also failed to show any pattern of effects.

Drug Education Strategy

The process evaluation of the *initial* Drug Education course revealed that students found the course too technical and fast-paced. They rated the course as mediocre in terms of usefulness, clarity, interest, and level of enjoyment. For the subsequent studies, a revised course was offered that was highly rated by students and appeared to be more successful at involving them in discussions and experiential activities.

The two evaluations of the Drug Education course showed it to have no pattern of effects on seventh grade boys, but provided some evidence of positive short-term effects on seventh grade girls, as shown in table 4. The first study showed positive effects on seventh grade girls' drug knowledge; their perceptions of peer attitudes toward, or use of, drugs; and their involvement in alcohol and marijuana use. These effects dissipated by the followup 1 year later. No effects, however, were found for eighth grade girls (or boys). Furthermore, the effects did not replicate in the final drug education study.

Cohort Studies

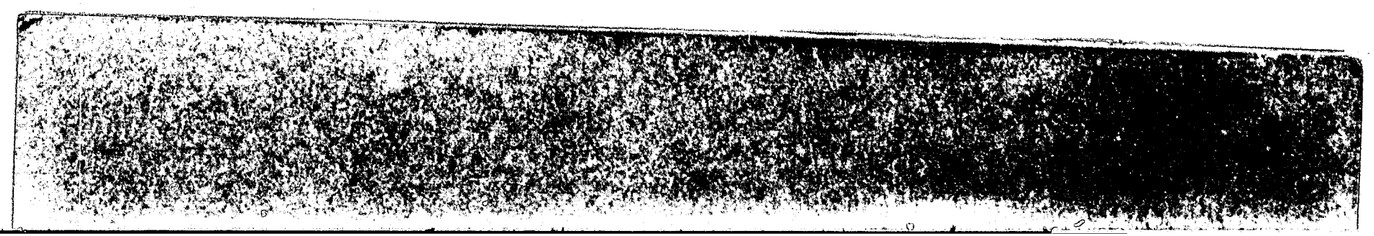
Experimental students in the Cohort I study received 2 years of Magic Circle followed by 1 year of Jigsaw. These students were in the fifth grade at the end of the third year. Third-year results showed no difference between boys in the experimental and control groups. Several negative effects were found for girls, but these

Table 4.--The effects of drug education on grade 7 females

Variable	Drug Education I		Cohort II		Drug Education II	
	Posttest	Followup	Posttest	Followup	Posttest	Followup
Drug knowledge	+		+	+		
Attitudes toward soft drug use						
Perceived peer attitudes toward soft drug use	+		+			
Perceived peer use of soft drugs						
Alcohol involvement	+		+	+		
Cigarette involvement						
Marijuana involvement	+		+	+		
Perceived pill benefits						
Perceived pill costs				+		
Attitudes toward hard drug use						
Perceived peer attitudes toward hard drug use	+					
Perceived peer use of hard drugs			+			
Perceived alcohol benefits			+	+		
Perceived alcohol costs						
Perceived marijuana benefits						
Perceived marijuana costs						
Attitudes toward drug-related behavior						

NOTE: Significant effects on inhalant, barbiturate, amphetamine, cocaine, PCP, LSD, and heroin involvement were unlikely because very few students had used any of these substances.

Drug Education I and II utilized experimental designs. In the Cohort II study students received other interventions in addition to drug education. This study utilized a nonequivalent control group. A plus (+) indicates a significant positive effect ($p < .05$). The soft drugs included alcohol, cigarettes, and marijuana; the hard drugs included all other substances listed in this table. Involvement scales consisted of items measuring life use, current use, and intentions to use.



probably were due to extraneous factors such as initial student differences.

Cohort II experimental students received ECM Junior High and Drug Education as seventh graders, and ECM Junior High as eighth graders. One third also received Cross Age Tutoring or School Store as eighth graders. Second year results showed that as compared to controls, experimental students had greater drug knowledge. Experimental girls were less involved in cigarette use and perceived that fewer of their peers were using drugs. Further analyses indicated that the effects were probably attributable to the Drug Education course. See table 4 for first year effects of this course upon Cohort II experimental girls.

Discussion

With the exception of Drug Education, the strategies failed to produce the hypothesized effects. The four inservice strategies and the two alternatives strategies had no systematic effect on students' perceptions of classroom climate; attitudes toward self, peers, or school; attendance; academic achievement; perceptions of peer group norms; or drug-related attitudes, intentions, or behaviors. Partial support was obtained for the efficacy of Drug Education in that positive effects were found for girls in two studies; however, in a third study the effects were not found. Also, none of the Drug Education studies showed a pattern of effects for boys.

The lack of effects does not seem attributable to weaknesses in the evaluation research design or implementation. Most of the studies were well designed and well executed. A wide array of student outcomes was measured using reliable instruments and carefully controlled assessment procedures. Pre-post test designs were used throughout with followup testing to identify any delayed effects. In most studies, students, classes, or schools were matched and then randomly assigned to conditions; where assignment was nonrandom, initial equivalence between conditions was usually established. Attrition rates were moderate and comparable across conditions in most studies. Finally, the data were analyzed using sensitive techniques that did not violate assumptions about statistical independence.

The strategies may have been ineffective because they were based upon an inadequate theory of substance abuse prevention. The theory underlying the strategies--more aptly characterized as a series of general hypotheses--holds that greater attention to students' affective needs will enhance constructive social attitudes, norms, and competencies, which, in turn, will decrease acceptance of and involvement in drug use. An investigation of the causal relationships among school-related attitudes and subsequent drug involvement in a junior high school cohort yielded no interpretable pattern (Schaffer et al. 1983). Prior drug involvement was by far the best predictor of subsequent drug involvement, and attitudes toward school and academic self-esteem were weakly and inconsistently related to subsequent drug involvement.

In the following sections the factors underlying the failure of each strategy to produce effects are discussed. Specific theoretical inadequacies are examined, in addition to any methodological shortcomings. The strategies are also examined with respect to their design and implementation.

Magic Circle

Magic Circle was evaluated in a 2-year study. For the first year the research design was strong; however, in the second year the design suffered because recruitment of teachers from the experimental schools for the Magic Circle inservice training was low. Hence, only a minority of experimental students participated in Magic Circle the second year. Multiple data analyses were conducted including contrasts of students with different levels of exposure to Magic Circle as well as contrasts of experimental and control students. No pattern of first- or second-year effects was found in the comparisons of experimental and control students nor, within the experimental group, was amount of participation in Magic Circle related to student outcomes.

The absence of effects in the Magic Circle evaluation may have been due to insufficient student exposure to the strategy. The typical student who received Magic Circle both years participated in a total of 42 sessions, or about 1 session per week. In contrast, in 13 prior studies where implementation was reported, students participated in an average of 60 sessions over a 19-week period, or about 3 sessions per week (Human Development Training Institute 1977). Thus, both total and weekly exposure were substantially lower in the present study than in most prior studies of this strategy. Although many of these prior studies showed positive effects, most of them had methodological shortcomings (Moskowitz et al. 1982). The present study showed that students in classes where exposure to Magic Circle was relatively high did not differ from those in classrooms where exposure was lower, but it should be noted that even the higher levels were well below the levels reported in previous studies. In sum, the available evidence is insufficient to establish a relationship between exposure levels and student outcomes, and additional research is needed.

Effective Classroom Management

Effective Classroom Management was evaluated in two 1-year elementary school studies and in a 3-year junior high school study. In the two elementary studies, schools were randomly assigned to conditions, and most experimental teachers completed ECM inservice training. Contrasting the students of these teachers with control students revealed few differences at pretest or posttest. In the junior high school study, the teachers in one school were offered ECM inservice training for 3 consecutive years; over half of them completed at least 1 year of ECM training. Students in this school were compared to students in another junior high school, and few differences were found at pretest or at the end of each study year. Furthermore, within the experimental school, students with different amounts of exposure to ECM-trained teachers were com-

pared and few differences were found. In sum, the research designs appeared to be adequate, yet no pattern of effects for ECM was detected.

The process evaluations revealed that most teachers rarely applied the ECM skills in their classrooms. Thus, the lack of effects might be attributable to the teachers' failure to adequately implement the strategy. However, this explanation ignores possible shortcomings in the strategy itself. Perhaps most importantly, ECM was not designed to change the general teaching styles or classroom routines of the teachers. Instead, teachers were asked to use the ECM skills in an ad hoc manner, as appropriate occasions arose. Many of the skills were applicable primarily with individual students or small-group situations, and few of the teachers used individualized teaching methods. Thus, the ECM skills may have been incompatible with the classroom contexts that teachers created and difficult for them to integrate into their teaching styles.

Moreover, affective teacher behaviors similar to certain ECM skills recently have been found to be negatively related to student self-concept and achievement gain (Coker et al. 1980). Thus, the underlying premise of ECM, that frequent and proficient use of the ECM skills benefits students in any teaching context, is questionable. Because the relationships among classroom context, teacher behavior, and student gains are complex, it is unlikely that classroom climate can be improved solely through teacher training in specific affective skills.

In sum, ECM appears to have some theoretical shortcomings that are manifested in the design and implementation of the strategy.

Jigsaw

Two studies failed to find effects for Jigsaw (Moskowitz et al. in press). In each study, schools were randomly assigned to conditions, and experimental teachers were offered Jigsaw inservice training. In the first study, teacher recruitment was low, and initial equivalence of conditions was obtained by using a randomized invitation design (Brewer 1976). This design contrasted students in each condition whose teachers initially had expressed a high degree of interest in Jigsaw. In the second study, teacher recruitment was high, and students in the two conditions were initially equivalent.

The time per week that students spent in Jigsaw groups was typical of that reported in prior studies and, because of the longer duration of students' participation, their total exposure to Jigsaw was much higher. However, observations revealed that across the two studies only 8 of the 19 Jigsaw teachers implemented the technique proficiently. In the other 11 classes, teachers substantially modified the technique or much off-task student behavior was observed.

Poor implementation of Jigsaw is an obvious factor related to the failure to find positive effects in either evaluation. But positive effects for Jigsaw were not found even when contrasts were limited to students in the eight exemplary Jigsaw classes as compared with students in control classes. Thus, implementation failure does not seem to be an adequate explanation for Jigsaw's ineffectiveness.

Given these results, Jigsaw does not appear to be a useful strategy for producing affective benefits. Previous research showing positive effects for Jigsaw on affective outcomes can be questioned on methodological grounds (Moskowitz et al. in press). Various other cooperative learning strategies have had positive influences in the affective domain (Johnson 1980; Sharan 1980; Slavin 1980), but there is an important difference between Jigsaw and these other strategies. According to Slavin (1980), cooperative learning "is primarily a change in the interpersonal reward structure of the classroom." Unlike the other cooperative learning techniques, with Jigsaw there is no group product nor do students receive grades based upon their group test performance. The Jigsaw classroom resembles more traditional learning approaches, and that reward structure may undermine its potential efficacy. Future researchers may wish to evaluate a modified Jigsaw in which students are rewarded for their group performance.

Alternatives

The lack of effects in two evaluations of Cross-Age Tutoring and School Store does not appear to be due to weaknesses in the research methodology. In the first study, an experimental design was utilized, and although the second study employed a nonequivalent control group, the design was biased toward finding positive effects.

The theory underlying the alternatives strategy has not been well conceptualized. The theory asserts that drug use is purposeful behavior directed at satisfying unmet needs and that people will stop using drugs when they find better ways to meet their particular needs. According to the theory, an effective alternative should provide the same short-term gratifications as the drugs in question and also provide long-term benefits such as enhanced skills, self-esteem or relationships with others. Given that the efficacy of alternatives as a primary prevention technique was to be tested with a student population consisting primarily of nonusers, focus was placed on the long-term benefits that various alternatives might provide, and two were selected that provided opportunities to learn useful skills and to help others. However, even this more narrow conceptualization of alternatives lacks strong ties to an empirically based theory about the etiology of drug abuse.

Although the weekly class sessions in the first Cross-Age Tu-

toring course were repetitious, the design and implementation of Cross-Age Tutoring and School Store were generally satisfactory. However, the courses may have been deficient to the extent that they were not sufficiently challenging or that the skills acquired had limited application beyond the courses. It also may be that the conceptualization of alternatives was an inadequate representation of the theory in one important respect. The theory calls for selection of an alternative suited to the particular needs of the individual, so that the activity will provide the appropriate short-term gratification. For example, needs for sensory experience and adventure might be satisfied by sky diving or mountain climbing. This procedure of carefully "matching" an individual with a suitable alternative was not incorporated in the implementation approach. Students were simply invited to request enrollment in either of two elective courses described to them. Whether the motives that prompted their enrollment were the same as the motives that might lead them to drug use is very much open to question. In essence this study presents a limited test of the alternatives approach to drug use prevention.

Drug Education

The inconsistent effects obtained in the three studies of drug education are not due to a weak evaluation design. The first and last study employed experimental designs, and the second study utilized a quasi-experimental design with a comparable comparison group. A wide range of drug-related outcomes was reliably assessed in all three studies.

The theory underlying the courses could not be fully examined as social competencies were not assessed . Nevertheless, partial support for the theory was obtained at least for girls, inasmuch as changes in drug involvement were associated with changes in drug knowledge and perceived norms. However, contrary to expectations, attitudinal changes were not found. Also, few effects were found for boys in any study.

There were several major differences in the design and implementation of the two versions of Drug Education. Whereas the first version was less comprehensive, its components were better integrated. In contrast to the second version, where information about the consequences of drug use was provided only during the last few sessions, the first version integrated this information throughout its 10 sessions. However, this version did not teach assertiveness or address social influences to use drugs. Moreover it was not well implemented; its delivery was too technical and fast-paced. On the whole, the first version of the course appears to have been less adequate, yet this version was as effective as the subsequent version, which initially seemed promising (in the Cohort II study) but was found ineffective in the final study.

In sum, the inconsistent findings for Drug Education cannot be explained in terms of program design or implementation. The theory underlying the course requires reexamination. Particular attention should be given to sex differences and to contextual factors that may mediate the efficacy of drug education.

Cohort I

The Cohort I study suffered from serious methodological problems that undermined the interpretion of the final results of this 3-year study. The overall rate of student attrition was substantial and was greater in the control group than in the experimental group. Furthermore, only a minority of experimental students was exposed to prevention strategies during all 3 years because many of their teachers did not participate in the inservice training. Any effects found at the end of the third year could be explained by initial student differences.

The interim evaluations conducted on this cohort did not suffer from serious methodological limitations. These studies indicated that none of the strategies had any immediate effects on participants. Thus, it seems unlikely that any cumulative effects on students would have been found even if the research design had not deteriorated.

Cohort II

In the Cohort II study a pattern of positive effects was found for girls during the first year. This pattern sustained until the end of this 2-year study. Girls in the experimental school, as compared to their control school counterparts, had greater drug knowledge, were less involved in cigarette smoking, and reported less drug use among their peers. Within the experimental school, student outcomes were unrelated to their exposure to ECM-trained teachers or to their participation in alternatives. Thus, the experimental effects appear to be solely attributable to Drug Education. That ECM and the alternatives strategies did not contribute to the efficacy of the total intervention is not surprising in light of the results of the other studies of these strategies.

Summary

The primary purpose of the Napa experiment was to evaluate the effectiveness of seven school–based substance abuse prevention strategies. One or more separate evaluations of each strategy were conducted during the course of the project. In addition, two or three strategies were provided to the same group of students over a 2– or 3–year period. In these cohort studies, the cumulative effects of the strategies were measued. All of the studies employed experimental or quasi–experimental designs.

With the exception of Drug Education, the strategies failed to produce the hypothesized outcomes. The four teacher–led inservice strategies and the two alternatives strategies had no systematic and predicted effect on students relevant to perceptions of classroom climate; attitudes toward self, peers, or school; attendance; academic achievement; perceptions of peer group norms; or drug–related attitudes, intentions, or behaviors. Three separate replications and evaluations of the Drug Education course showed it to have no pattern of effects on seventh or eighth grade boys, but provided some evidence of positive short–term effects only on seventh grade girls. The first two studies showed short–term effects on girls' drug knowledge and their perceptions of peer attitudes toward or use of drugs. Short–term effects on girls' involvement in alcohol and marijuana use were also shown in the first study, and a long–term effect on cigarette involvement was found in the second study. However, most of these effects had dissipated by the 1–year followup. Furthermore, these effects did not replicate in the third study, which showed no effects for girls. Taken together, these results suggest that the effects of the courses on girls are at best inconsistent and short–lived.

The lack of overall effects does not seem attributable to the quality of implementation or evaluation research. Most of the studies were well designed and well executed. A wide array of student outcomes was measured using reliable instruments and carefully controlled assessment procedures. Pre–post test designs were used throughout with followup testing to identify any delayed effects. In most studies, students, classes, or schools were matched and then randomly assigned to conditions; where assignment was nonrandom, initial equivalence between conditions was tested and found generally high. Attrition rates were moderate and comparable across conditions in most studies. Finally, the data were analyzed using appropriate statistical techniques that did not violate assumptions about statistical independence.

These findings suggest that the strategies may have been ineffective because they were based upon an inadequate theory of substance abuse prevention. The theory underlying the strategies–more aptly characterized as a series of general hypotheses–holds that greater attention to students' affective needs will enhance constructive social attitudes, norms, and competencies, which in turn will decrease acceptance of and involvement in drug use. The evalution studies do not provide any empirical support for this theory. Furthermore, an investigation of the causal relationships between school–related attitudes and subsequent drug involvement in a junior high school cohort failed to yield an interpretable pattern. Prior drug involvement was by far the best predictor of subsequent drug involvement, and attitudes toward school and academic self–esteem were weakly and inconsistently related to subsequent drug involvement.

References

Ahlgren, A., and Norem-Hebeisen, A. Self-esteem patterns distinctive of groups of drug-abusing and other dysfunctional adolescents. *International Journal of Addictions* 14:759–777, 1979.

Ajzen, I., and Fishbein, M. Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological Bulletin* 84:888–918, 1977.

Arkin, R.; Roemhild, H.; Johnson, C.; Leupker, R.; and Murray, D. The Minnesota smoking prevention program: A seventh-grade health curriculum supplement. *Journal of School Health* 51:611–616, 1981.

Botvin, B., and Eng, A. The efficacy of a multicomponent approach to the prevention of cigarette smoking. *Preventive Medicine* 91:199–211, 1980.

Botvin, G.; Eng, A.; and Williams, C. Preventing the onset of smoking through life skills training. *Preventive Medicine*. 9:135–143, 1980.

Brewer, M. Randomized invitations: One solution to the problem of voluntary treatment selection in program evaluation research, *Social Science Research* 5:315–323, 1976.

Coker, H.; Medley, D.; and Soar, R. How valid are expert opinions about effective teaching? *Phi Delta Kappan* 62:131–134, 1980.

Evans, R.; Rozelle, R.; Maxwell, S.; Raines, B.; Dill, C.; Guthrie, T.; Henderson, A.; and Hill, P. Social modelling films to deter smoking in adolescents: Results of a three-year field investigation. *Journal of Applied Psychology* 66:399–414, 1981.

Fishbein, M. Attitude and the prediction of behavior. In: Fishbein, M, ed. *Readings in Attitude Theory and Measurement*. New York: Wiley, 1967.

Flay, B.; d'Avernas, J.; Best, J.; Kersell, M.; and Ryan, K. Cigarette smoking: Why young people do it and ways of preventing it. In: McGrath, P., and Firestone, P., eds. *Pediatric and Adolescent Behavioral Medicine*. New York: Springer-Verlag, 1983. pp. 132–183.

Human Development Training Institute. *Review of the Literature of Research Investigations of the Magic Circle/Human Development Program*. LaMesa, Calif.: Human Development Training Institute, 1977.

Hurd, P.; Johnston, C.; Pechacek, T.; Bast, C.; Jacobs, D.; and Luepker, R. Prevention of cigarette smoking in seventh grade students. *Journal of Behavioral Medicine* 3:15–28, 1980.

Jessor, R.; Collins, M.I.; and Jessor, S.L. On becoming a drinker: Social-psychological aspects of an adolescent transition. *Annals of the New York Academy of Sciences* 197:199–213, 1972.

Jessor, R.; Jessor, S.L.; and Finney, J. A social psychology of marijuana use: Longitudinal studies of high school and college youth. Unpublished. Boulder, Colo: Institute of Behavioral Science, University of Colorado, 1973.

Jessor, R., and Jessor, S.L. Adolescent development and the onset of drinking. *Journal of Studies on Alcohol* 36:27–51, 1975.

Johnson, D. Group processes: Influences of student-student interaction on school outcomes. In: McMillan, J., ed. *The Social Psychology of School Learning*. New York: Academic Press, 1980, pp. 123–168.

Malvin, J., and Moskowitz, J. Anonymous vs. identifiable self-report of adolescent drug attitudes, intentions and use. *Public Opinion Quarterly* 47:557–566, 1983.

Maslow, A. *Motivation and Personality*. New York: Harper & Row, 1980.

McAlister, A.; Perry, C.; Killen, J.; Slinkard, L.; and Maccoby, N. Pilot study of smoking, alcohol and drug abuse prevention. *American Journal of Public Health* 70:719–721, 1980.

Moskowitz, J. Preventing adolescent substance abuse through drug education. In: Glynn T.; Leukefelt C.; and Ludgord J., eds. *Preventing Adolescent Drug Abuse: Intervention Strategies*. National Institute on Drug Abuse Research Monograph 47, DHEW Pub. No. (ADM)83-1280, 1983. pp. 233–249.

Moskowitz, J.; Schaeffer, G.; Condon, J.; Schaps, E.; and Malvin, J. *Psychometric Properties of the Drug and Alcohol Survey*. Educational Resources Information Center (ERIC), No. ED 212678, Princeton, N.J.: Educational Testing Service, April 1981.

Moskowitz, J.; Condon, J.; Brewer, M.; Schaps, E.; and Malvin, J. *Scaling of Student Self-Report Instruments*. Educational Resources Information Center (ERIC), No. ED 205530, Princeton, N.J.: Educational Testing Service, Dec. 1979.

Moskowitz, J.; Schaps, E.; and Malvin, J. Process and outcome evaluation in primary prevention: The Magic Circle program. *Evaluation Review* 6:775–788, 1982.

Moskowitz, J.; Malvin, J.; Schaeffer, G.; and Schaps, E. Evaluation of Jigsaw, a cooperative learning technique. *Contemporary Educational Psychology*, in press.

Perry, C.; Killen, J.; Slinkard, J.; and McAlister, A. Peer teaching and smoking prevention among junior high school students. *Adolescence* 15:277–281, 1980.

Schaeffer, G.; Moskowitz, J.; Malvin, J.; and Schaps, G. *School-Related Attitudes and Drug Involvement: Testing a Causal Model Using Latent Variables and Longitudinal Data*. Technical Report to Prevention Branch, National Institute on Drug Abuse. Napa, Calif.: Pacific Institute for Research and Evaluation, June 1983.

Schaps, E., and Slimmon, L. *Balancing Head and Heart, Book 2: Eleven Strategies.* Lafayette, Calif.: Prevention Materials Institute Press, 1975.

Schlegel, R.P.; Crawford, C.A.; and Sanborn, M.D. Correspondence and meditational properties of the Fishbein model: An application to adolescent alcohol use. *Journal of Experimental Social Psychology* 13:421–430, 1977.

Sharan, S. Cooperative learning in small groups: Recent methods and effects on achievement, attitudes and ethnic relations. *Review of Educational Research* 50:241–271, 1980.

Slavin, R. Cooperative learning. *Review of Educational Research* 50:315–342, 1980.

Smith, G., and Fogg, C. Psychological predictors of early use, late use, and non-use of marijuana among teenage students. In: Kandel D., ed. *Longitudinal Research on Drug Use.* Washington: Hemisphere, 1978. pp. 101–113.

Appendix: Project Research Reports and Publications

Project Research Reports

Drug Education

A. Schaps, E.; Moskowitz, J.; Condon, J.; and Malvin, J. *An Evaluation of an Innovative Drug Education Program: First Year Results.* (Revised). *ED 213738, July 1981. 32 pp.

Schaps, E.; Moskowitz, J.; Condon, J.; and Malvin, J. Process and outcome evaluation of a drug education course. *Journal of Drug Education* 12:353-364, 1982.

B. Moskowitz, J.; Schaps, E.; Malvin, J.; Schaeffer, G.; and Condon, J. *An Evaluation of an Innovative Drug Education Program: Follow-Up Results* *ED 231739, Nov. 1981. 21 pp.

Moskowitz, J.; Schaps, E.; Malvin, J.; and Schaeffer, G. The effects of drug education at follow-up. *Journal of Alcohol and Drug Education,* in press.

C. Moskowitz, J.; Malvin, J.; Schaeffer, G.; and Schaps, E. An experimental evaluation of a drug education course. *Journal of Drug Education* 14:9–22, 1984.

Alternatives

D. Malvin, J.; Moskowitz, J.; Schaps, E.; and Schaeffer, G. Evaluation of two school-based alternatives progams. *Journal of Alcohol and Drug Education,* in press.

Effective Classroom Management

E. Schaps, E.; Moskowitz, J.; Condon, J.; and Malvin, J. *A Process and Outcome Evaluation of an Affective Teacher Training Prevention Program.* (Revised), *ED 202906, Nov. 1980. 54 pp.

Schaps, E.; Moskowitz, J.; Condon, J.; and Malvin, J. A process and outcome evaluation of an affective teacher training prevention program. *Journal of Alcohol and Drug Education,* in press.

F. Moskowitz, J.; Malvin, J.; Schaeffer, G.; Schaps, E.; and Condon, J. The effect of a classroom management teacher training primary prevention program on fifth-grade students, *ED 212679, July 1981. 38 pp.

Moskowitz, J.; Malvin, J.; Schaeffer, G.; and Schaps, E. Evaluation of an affective development teacher training program. *Journal of Primary Prevention*, in press.

G. Schaeffer, G.; Moskowitz, J.; Malvin, J.; and Schaps, E. *The Effects of a Classroom Management Teacher Training Program on Fifth-Grade Students: One-Year Follow-Up.* Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, Dec. 1981. 19 pp

H. Schaps, E.; Moskowitz, J.; Condon, J.; Malvin, J.; and Schaeffer, G. *A Process and Outcome Evalution of an Affective In-Service Training Program for Junior High School Teachers.* Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, July 1981. 47 pp.

I. Moskowitz, J.; Malvin, J.; Schaeffer, G.; Schaps, E.; and Condon, J. A process and outcome evaluation of an affective in-service training program for junior high school teachers: Second year results. *ED 212680, Sept. 1981. 43 pp.

J. Malvin, J.; Moskowitz, J.; Schaeffer, G.; and Schaps, E. Teacher training in affective education for the primary prevention of adolescent drug abuse. *American Journal of Drug and Alcohol Abuse* 47:557-566, 1984.

Jigsaw

K. Moskowitz, J.; Malvin, J.; Schaeffer, G.; Schaps, E.; and Condon, J. A process and outcome evaluation of a peer teaching primary prevention program. *ED 212681, Sept. 1981. 42 pp.

Moskowitz, J.; Malvin, J.; Schaeffer, G.; and Schaps, E. Evaluation of a cooperative learning strategy. *American Educational Research Journal* 20:687-696, 1983.

L. Schaeffer, G.; Moskowitz, J.; Schaps, E.; and Malvin, J. *The Effects of Jigsaw on Fifth and Sixth Grade Students at Follow-Up.* Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, May 1982. 15 pp.

M. Moskowitz, J.; Malvin, J.; Schaeffer, G.; and Schaps, E. Evaluation of Jigsaw, a cooperative learning technique. *Contemporary Educational Psychology*, in press.

N. Moskowitz, J.; Schaps, E.; and Malvin, J. A process and outcome evalution of a Magic Circle primary prevention program. *ED 202905, Aug. 1980. 50 pp.

Moskowitz, J.; Schaps, E.; and Malvin, J. Process and outcome evaluation in primary prevention: The Magic Circle program. *Evaluation Review* 6:775-788, 1982.

O. Schaeffer, G.; Moskowitz, J.; Schaps, E.; and Malvin, J. *A Process and Outcome Evaluation of Magic Circle: Second Year Results.* Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, July 1981. 30 pp.

Multiple Strategies

P. Schaeffer, G.; Moskowitz, J.; Schaps, E.; and Malvin. J. *The Cumulative Effects of Two Primary Prevention Programs: Jigsaw and Effective Classoom Management-Junior High.* Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, May 1982. 15 pp.

Q. Schaeffer, G.; Moskowitz, J.; Schaps, E.; and Malvin, J. *The Cumulative Effects of Two Primary Prevention Programs: Effective Classroom Management-Elementary and Jigsaw.* Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, May 1982. 11 pp.

R. Schaeffer, G.; Moscowitz, J.; Malvin, J.; and Schaps, E. The effects of three years of participation in a primary prevention program on elementary school students. *ED 221607, May 1982. 21 pp.

S. Moskowitz, J.; Schaps, E.; Schaeffer, G.; and Malvin, J. Evaluation of a substance abuse prevention program for junior high school students. *International Journal of the Addictions* 19: 419-430, 1984.

T. Moskowitz, J.; Malvin, J.; Schaeffer, G.; and Schaps, E. Evaluation of a junior high school primary prevention program. *Addictive Behaviors* 8:393-401, 1983.

Annual Drug Survey Reports

U. Moskowitz, J.; Schaps, E.; Condon, J.; Malvin, J.; and Martin, G. *01 Year Annual Drug Survey.* Walnut Creek, Calif.: Pa- cific Institute for Research and Evaluation, Dec. 1979. 45 pp.

V. Moskowitz, J.; Malvin, J.; Condon, J.; Schaps, E.; and Schaeffer, G. *02 Year Annual Drug Survey*. *ED 212677, Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, July 1981. 41 pp.

W. Malvin, J.; Moskowitz, J.; Schaeffer, G.; and Schaps, E. *03 Year Annual Drug Survey*. Walnut Creek, Calif.: Pacific Institute for Research and Evalaution, May 1982. 50 pp.

Miscellaneous Reports

X. Schaeffer, G.; Moskowitz, J.; Schaps, E.; and Malvin, J. *School-Related Attitudes and Drug Involvement: Testing a Causal Model Using Latent Variables and Longitudinal Data*. Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, June 1983. 24 pp.

Y. Schaeffer, G.; Moskowitz, J.; Malvin, J.; and Schaps, E. *Documentation of Napa Project Data Files*, Walnut Creek, Calif.: Pacific Institute for Research and Evaluation, Sept. 1983.

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