REPORT TO ATTORNEY GENERAL
JOHN K. VAN DE KAMP

A STATEWIDE SURVEY OF DRUG AND ALCOHOL USE AMONG CALIFORNIA STUDENTS IN GRADES 7, 9, AND 11

WINTER 1985-1986

The opinions, findings and conclusions in this publication are those of the authors and not necessarily those of the Department of Justice

Rodney Skager, Ph.D.
Project Director

Dennis Fisher, Ph.D.
Ebrahim Maddahian, Ph.D.

For further information or additional copies of this report, write:

Office of the Attorney General
Crime Prevention Center, Suite 100
1515 K Street
Post Office Box 944255
Sacramento, California 94244-2550

May 1986

STATEMENT OF THE ATTORNEY GENERAL

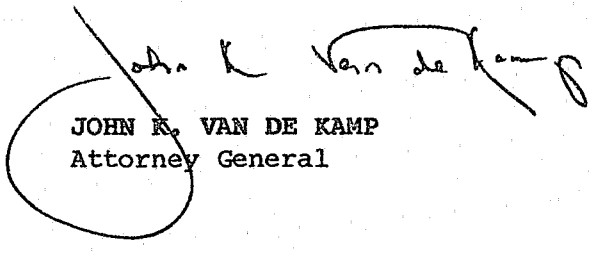
My long time personal concern about drug abuse and its effects on the quality of life was accentuated during my experience as Los Angeles County District Attorney in prosecuting drug cases and as Attorney General in mounting a major effort to reduce the supply of illicit drugs in California. However, I have been frustrated by the continued abuse of drugs by our young people despite law enforcement's efforts to reduce the supply.

We have known that the drug and alcohol problem among youth is serious, but we lacked California data to use in mounting a successful prevention effort. Therefore, I asked the Crime Prevention Center to contract with Dr. Rodney Skager, Associate Dean, UCLA Graduate School of Education, to conduct a statewide survey of California secondary school students. Dr. Skager had previously completed such surveys for Orange and Ventura Counties as well as some school districts.

Completion of the statewide survey and release of Dr. Skager's report is a significant milestone in California's war on drug and alcohol abuse. It is the first statewide survey of California secondary students' use of alcohol and other drugs, their attitudes, and their experience with school-based prevention education. This benchmark study makes it only too clear--51 percent of California high school juniors have used illegal drugs, and over 65 percent have been intoxicated on alcohol.

In October 1985, I also formed a multidisciplinary Commission on the Prevention of Drug and Alcohol Abuse as part of our demand-side approach to illicit drug use. The Commission was charged with examining the effectiveness of current strategies and programs in California in preventing drug and alcohol abuse among young people and asked to recommend how these efforts can be improved to move California to a norm of no drug use and no alcohol misuse. The Commission reported its findings and 48 recommendations to me in May 1986.

During the coming year, we will be working to implement the Commission's recommendations and continuing to promote greater public awareness of the drug and alcohol abuse problem. It is with that in mind that I commend this report to you, in the hope that when you find out the extent of alcohol and drug abuse by California youth, you will make prevention a priority of this decade. We need a unified effort to succeed, and we must start right now.



JOHN K. VAN DE KAMP
Attorney General

ACKNOWLEDGMENTS

My colleagues and I are deeply indebted to **Attorney General John K. Van de Kamp** for perceiving the need for a statewide survey of alcohol and other drug use among secondary school students and for his willingness to commit material and human resources from the Office of the Attorney General, Crime Prevention Center, to the resulting effort.

We wish to express our appreciation to **Jack Dugan, Roger Carrick** and **Thomas F. Powers** of the Crime Prevention Center for the outstanding support and guidance they provided from the inception to the final phase of the project. **Paula Higashi**, who coordinated the project in the Center, rendered invaluable assistance at all levels of the work, including, but not limited to, project organization, planning, outreach to participating schools, distribution of project materials, editorial assistance, and critical reading of the manuscript. It has been a distinct pleasure to work with these individuals as well as other members of the Attorney General's staff.

On the Los Angeles side, **Anne Skager** handled contacts with schools and distribution of materials with great patience and competence and performed other valuable services including preparation of the draft manuscript. **Helen Yun**, with invariable competence and diligence, examined each of the 7,500 questionnaires for defects before keypunching began.

To our own UCLA colleagues, **Professors Peter Bentler** and **Leigh Burstein**, we are greatly indebted for methodological and conceptual advice. Professor Burstein took charge of the sample selection at a time when the senior author was in the hospital, a service which exemplifies his warm friendship and ever-responsible collegiality. Any deficiencies of this research in research design and methods of analysis are to be attributed to our own inability to carry out the excellent advice given by these two colleagues.

Miriam Black, until recently director of the Focus Center in Los Angeles, provided excellent consulting advice on alternative models of prevention education. An important section of the questionnaire was shaped by her advice.

Finally, the school superintendents, principals, and teachers who agreed to conduct and administer the survey deserve the special appreciation of the people of California. Without their commitment and professionalism this study could not have been accomplished.

Rodney Skager
Los Angeles

May 5, 1986

A STATEWIDE SURVEY OF DRUG AND ALCOHOL USE AMONG CALIFORNIA STUDENTS IN GRADES 7,9, and 11

WINTER 1985-1986

****

TABLE OF CONTENTS

****

Page

LIST OF TABLES

Page

APPENDICES

EXECUTIVE SUMMARY

The survey assessed 7,379 students in 87 California secondary schools (45 high schools and 42 junior high or intermediate schools). Participating students were drawn from grades 7 (2,087), 9 (2,533), and 11 (2,759), and were limited to English-speaking students. Allowing for some variation by grade level, the sample was distributed ethnically approximately as follows: American Indian 3%, Asian 10%, Black 10%, Hispanic 20%, White 50%, and Other 7%.

The sample of schools was proportional, random and stratified according to six regions of the state (San Francisco, Los Angeles, San Diego, Northern, Central, and Inland/Southern). High schools were randomly selected within each region based on a further stratification according to (a) 12th grade enrollment (high vs. low), (b) socioeconomic status of parents (high vs. low), and (c) percent of limited or non-English speaking students (high vs. low). For each selected high school a "feeder" junior high or intermediate school was also identified and asked to participate.

Random sample of 25% of students were drawn at each school at the grade levels to be assessed. Virtually all schools notified the parents of selected students of the nature and purpose of the survey and of the fact that their child's responses would be anonymous. Questionnaires did not require names or other identifying information other than sex, grade level, and age. Although it was also made clear to both parents and students that participation was voluntary, instances of unwillingness to participate were minimal (less than 1% of the students contacted). Students who were absent on the day the survey was administered were also not included. Approximately 20% of the student body at the three grade levels completed questionnaires at each school.

The questionnaire administered to 9th and 11th grade students required from 15 to 30 minutes to complete. A somewhat shorter and verbally less demanding version was developed for 7th grade students. Questionnaire content included questions on the use of 17 psychoactive substances including three forms of alcohol; marijuana; stimulant drugs such as amphetamines and cocaine; psychedelic drugs or substances such as LSD; narcotics, including heroin; PCP; cigarettes; and nonprescription use of various controlled medical substances

such as barbiturates or tranquilizers. Students were asked to respond by indicating frequency of use of each substance over the previous six months. They were provided with a 7-point scale varying from "1" for "never" to "7" for "more than once a day." They were also asked to indicate the number of times, if any, they had used more than one drug on the same occasion, e.g., alcohol with marijuana. Simultaneous use of more than one substance is usually referred to as "polydrug" use and represents a particularly dangerous form of drug use.

Additional questions assessed age of first use and intoxication; peer attitudes about regular drug or alcohol use; judgments about the harmfulness of regular alcohol and marijuana use; sources of knowledge about drugs; where students obtain drugs; reasons students use vs. do not use drugs; and experience with five forms of alcohol/drug prevention education.

Completed questionnaires were inspected for cases which reflected improbably high levels of drug and alcohol use, inconsistent response patterns, or incompleteness. A total of 206 questionnaires (or 2.7% of the original sample of 7,585 cases) were removed for these reasons, including 34 which appeared to report improbably high levels of substance use. For this and other reasons, including the likelihood that at least some of the most seriously involved users of alcohol and other drugs would have dropped out of school by grade 11, the results of the survey probably provide somewhat conservative estimates of the amount and frequency of alcohol and drug use by California young people.

Beer was the most popular substance in terms of total use. Forty-one percent of 7th, 61% of 9th, and 69% of 11th grade students drank beer at least once during the previous six months. Use of wine and hard liquor was less than that of beer, but more than total use of marijuana. The latter was the most popular nonalcoholic drug. It was used by 10% of 7th, 32% of 9th, and 42% of 11th grade students in the six months preceding the survey. Cocaine ranked next among single substances. It was used by 3% of 7th, 10% of 9th, and 18% of 11th grade students. However, inhalants, a class of substances including commonly available hydrocarbons such as paint thinner or gasoline, were used by even more students, especially at lower grade levels, with 18% of 7th, 16% of 9th, and 14% of 11th grade students reporting at least some use. Inhalants were the only class of substances used more frequently by younger

students. Finally, there was considerably less use of psychedelic substances, with mushrooms leading this group at 3% of 7th, 6% of 9th, and 9% of 11th grade students, compared to 1%, 4% and 6%, respectively, for LSD. There was relatively little, if any, use of narcotics, including heroin, with 1% or less reporting use of such substances at any grade level.

Weekly or more frequent use of beer was reported by 2% of 7th, 12% of 9th, and 20% of 11th grade students. Beer was also the most frequently used substance on a weekly basis. Marijuana was used weekly by 1% of 7th, 9% of 9th, and 13% of 11th grade students. Weekly use of other substances or classes of substances other than alcohol and marijuana, including cocaine and inhalants, was seldom reported by more than 1% or 2% of students at any grade level. Most frequent of the latter was cocaine, used at least weekly by 3% of 11th grade students.

Daily or more frequent use was confined mainly to marijuana. Less than 1% of 7th grade students reported daily use of this drug. However, 5.2% of 9th and 7.4% of 11th grade students indicated that they used marijuana daily. Daily use of beer was reported by only 2.4% of 9th and 3% of 11th grade students.

Daily use of marijuana or any other drug by 14- and 16-year-old adolescents, at the very least, defines a high risk group. The full impact of these findings can be appreciated if the percentage of daily marijuana use is projected to the statewide total for the population from which the sample was drawn. Daily use of marijuana by 7.4% of 11th grade students projects to 17,653 students statewide. The 5.2% use figures for 9th grade amounts to 12,149 students statewide. Comparable figures for grades 10 and 12 could be added, yielding an estimate of over 60,000 California secondary school students who use marijuana daily. This single statistic defines a public health, law enforcement, and educational problem of potentially very great magnitude.

Polydrug use (use of two or more drugs on the same occasion) is an especially dangerous form of alcohol and other drug use because the effects tend to be synergistic and thus unpredictable. One percent of 7th, 7% of 9th and 12% of 11th grade students reported polydrug use at least once per

month. Polydrug use on 10 or more occasions in the previous 6 months was reported by 4.2% of 9th and 7% of 11th grade students. These figures are quite close to the daily use rates for marijuana, especially at grade 11.

Students who had used alcohol or other drugs were asked to give the age at which they first tried alcohol vs. other drugs and the age of first intoxication from alcohol vs. high from other drugs. By age 12, 58% of 7th graders had tried alcohol and 16% had been intoxicated; by age 14, 78% of 9th graders had tried alcohol and 47% had been intoxicated; and by age 16, 85% of 11th grade students had tried alcohol and 65% had been intoxicated. The parallel figures for drugs other than alcohol are: grade 7, 11% tried and 8% high; grade 9, 36% tried and 30% high; grade 11, 51% tried and 45% high.

When asked the drug on which they had first been intoxicated or high, 54% of 9th and 69.5% of 11th grade students responded by checking alcohol or some other class of drugs. Alcohol and marijuana were the two substances cited most frequently, with alcohol leading marijuana as the substance of first intoxication by a margin of approximately 3 to 1 (38% for alcohol vs. 14% for marijuana among 9th graders, and 53% vs. 15% for 11th graders). If first intoxication is a significant step in the process of drug involvement, alcohol is the primary substance of initiation.

Perhaps most important, over half of 9th and over two-thirds of 11th graders reported that they had been intoxicated or high on alcohol or another drug at least once. In the purely statistical sense having experienced some form of intoxication is apparently "normal" by the 9th grade in California. If the statistical majority translates into a perceived norm for the majority of students, then the dominant peer culture of most high schools is likely to support experimentation with alcohol and other drugs.

Cigarettes were used with much less frequency than alcohol at any grade level and less frequently than marijuana at grade 11. Only 16% of 7th, 34% of 9th, and 31% of 11th grade students used any cigarettes at all during the previous six months. In sharp contrast to alcohol and other drugs, there was no meaningful increase in regular smoking between 9th and 11th grades. Only 13% of 9th graders and 14% of 11th graders reported smoking one or more cigarettes per day.

Ninety percent or more 9th and 11th grade students reported knowing at least some adults who use alcohol. Fifty-one percent of 9th and 61% of 11th graders knew at least some adults who use marijuana. Adult models for the use of both types of substances are thus present in the environment of most students.

Ninth and 11th grade students were asked to predict their closest friends' reactions to vignettes about (a) another student who regularly showed signs of intoxication at school and other social events and (b) another student who drank or used regularly but did not show the effects. For both 9th and 11th grade students, only about one-third thought that their best friends would accept or join the first type of student. However, 39% of 9th and 48% of 11th graders predicted that their best friends would accept or join the second type. In other words, by grade 11 almost half of the students believed that their closest friends would fully accept an individual who regularly used alcohol or other drugs in an "adult" manner, not showing the effects behaviorally.

Seventh grade students were asked whether they thought their best friends had already tried alcohol vs. marijuana, wanted to do so, or probably never would. Thirty-four percent thought their best friends had already tried alcohol compared to 17% for marijuana. Only 20% predicted that their friends would never try alcohol compared to 47% who made the same prediction for marijuana. The peer climate in the 7th grade was more accepting of alcohol than marijuana use.

When asked about the harmfulness of regular alcohol vs. marijuana use, students at all three grade levels judged the latter to be more harmful, although by grade 11 the difference was smaller (52% considered regular marijuana use to be harmful compared to 44% for alcohol). There was also a significant drop between grades 7 and 9 in the percentage of students rating regular use of marijuana as harmful (from 72% down to 53%). This reflects the fact that many students begin experimenting with that substance during this period.

Students were asked whether they had learned about drugs from friends, parents, school classes, and their own experience. As grade level increased,

school classes were cited less frequently (from 66% at grade 7 to 58% by grade 11), as were parents (from 38% to 29%). In contrast, friends were cited more frequently (from 32% to 66%) and so was "own experience" (from 14% to 38%). Still, school remained an important source of information throughout the three grade levels, exceeded only by friends at grade 11.

When asked where students in the school obtained drugs, the most frequent response among 9th and 11th grade students was "at school (friends, dealers)" given by 33% of 9th and 40% of 11th grade students. Parties and social events outside of school and friends outside of school attracted almost identical percentages of responses at the two higher grades (27% at grade 9 and 33% at grade 11). Home was cited by only 5% of 7th and 7% of 9th and 11th grade students. Although supplies of drugs may originate with "dealers," friendship networks are obviously the primary means of distribution.

When asked reasons for not using alcohol or drugs, most students (79% at grades 7 and 11 and 73% at grade 9) cited fear of becoming an alcoholic or addict. Getting in trouble with police or school was cited by approximately 60% of students regardless of grade level. Losing friends was cited by 54% of 7th graders and 42%-43% of 9th and 11th graders. All of the former are extrinsic reasons. Each involves fear of negative consequences or disappointing others. Fewer students at grades 9 and 11 endorsed the intrinsic alternative, "would disappoint yourself because you have chosen not to drink or use drugs" (54% of 7th, 25% of 9th, and 30% of 11th grade students). It is likely that extrinsic reasons such as fear of consequences or hurting others are less resistant to change than intrinsic motivation to maintain one's chosen identity.

There is reason to believe that 30% of 11th grade students are highly resistant to the use of alcohol and drugs. In addition to the 30% who gave an intrinsic reason for not drinking or using, an almost identical percentage (30.8%) did not drink beer, the most commonly used substance. Likewise, 30.5% reported that they had never been high or intoxicated from alcohol or drugs. When all 11th grade students (including those over age 16) are included, 34% reported that they had never been intoxicated from alcohol. Finally, responses to questions on prevention education summarized below

revealed that 31% responded that they were not affected by prevention classes because they had already decided on their own not to use alcohol or drugs, providing more evidence for intrinsically motivated abstinence in this group.

Ninth and 11th grade students were asked whether they had taken school classes on each of five models of prevention education. Information about alcohol and drugs and health and safety were cited by the largest proportion of students (50% to 65% at the two grade levels). Learning refusal skills (how to say "no" when under social pressure to drink or use) was reported by 44% of 9th and 42% of 11th grade students. Setting personal goals and decision making was reported by similar proportions of students. Alternatives to drug and alcohol use was checked by about 25% at both grade levels.

Twenty-six percent of 9th and 22% of 11th grade students had not taken any alcohol or drug prevention classes during their current school year. Ratings of the quality of prevention classes were moderately positive. When asked what they had learned in prevention classes, 38% of 9th and 46% of 11th grade students indicated they had gained information or knowledge about drugs and alcohol. From 29% to 41% at both grade levels had learned to avoid or reduce drug or alcohol use, how to resist pressure to drink or use, to avoid dangerous forms of drug use, and to avoid driving under the influence.

Average scores on total alcohol and marijuana use were compared for students who "had" vs. "had not" taken each of the five types of prevention education. There was no consistent pattern of differences for 9th grade students for either substance. However, in virtually all comparisons, 11th grade students who had taken each of the five types of prevention education reported significantly less alcohol and marijuana use than those who had not. While these results support the effectiveness of prevention education at grade 11, they are at best suggestive rather than definitive, since causation cannot be established with nonexperimental data of this type.

The six regions from which the sample was drawn were compared for total alcohol, marijuana, cocaine, and inhalant use. The results show that these substances were used in all regions, although some differences did exist. In particular, the three large metropolitan regions did not prove to have the

highest levels of use as might have been expected. In several cases, the Northern Region reported significantly higher levels of use than at least some other regions for alcohol and marijuana at both the 9th and 11th grades.

Comparisons between the six ethnic classifications were also made for the same four substances. In general, American Indian and White students reported the highest levels of substance use. Asian students were consistently lowest, with Blacks and Hispanics typically falling between the other groups. This pattern applies primarily to alcohol and marijuana use where significant ethnic differences were most frequently observed for both 9th and 11th grade students.

Rodney Skager
May 5, 1986

INTRODUCTION

This report summarizes the findings of a survey of drug and alcohol use among 7th, 9th and 11th grade students enrolled in public secondary schools in California. The survey was sponsored by the Office of the Attorney General in recognition that drug and alcohol use are closely associated with crime and other law enforcement problems. Within this perspective, prevention of drug and alcohol use by children and adolescents becomes an essential first stage of crime prevention. The survey is the first attempt in the State of California to determine the nature and extent of drug and alcohol use by students in secondary schools.

The survey assessed how often students used a variety of psychoactive substances as well as the age of first use and intoxication. It also assessed various student attitudes and experiences related to the use of such substances. The latter included attitudes of friends and parents about the use of alcohol or other drugs, the number of adults the student knows who use alcohol or drugs, and the student's perception of the harmfulness of regular alcohol and marijuana use. The students also provided information about alcohol and drug prevention classes they had taken as a part of the regular school curriculum.

The survey was administered during the period December 1985 to February 1986, to 7,585 students enrolled in 87 California secondary schools. The sampling procedures used were designed to permit generalization of the results to the total population of English-speaking 7th, 9th, and 11th grade students in the State of California.

GOALS OF THE SURVEY

The survey was conducted to provide an information base for efforts to prevent alcohol and drug use by California teenagers. It is the first survey of this type to be conducted statewide. As such, the findings of the survey provide the most up-to-date and pertinent information available on what is considered by many to be the most serious social problem in our state and nation.

More specifically, three primary goals are addressed by the information provided in this report.

(1) The results of the survey are expected to heighten the awareness of legislators, officials, and the general public about the need to improve and extend alcohol and drug prevention efforts directed at young people.

(2) The data on substance use and related attitudes will provide a baseline for later evaluation of prevention programs. It is anticipated that specific research will be done in the future which will relate various modes of prevention to changes in the level and type of substance use. Without such a "pretest" baseline, it would be difficult to determine whether one or more approaches to prevention are associated with less substance use, or whether there are changes over time in patterns of substance use for different groups or for the student population as a whole.

(3) The information on type and extent of student involvement in prevention education will provide a profile of the current curriculum in California schools. The report will determine whether there is any association between type of prevention education and level of substance use by students, although inferences of a causal nature cannot be made without a continuing program of research.

(4) The last stage of analyis of the data from the survey will involve the identification of clusters of California schools to be used as normative reference points for similar schools which did not participate in the survey. That is, an attempt will be made to group schools into clusters based primarily on demographic similarity. Frequency of use of the substances assessed will then be calculated for each cluster. If this procedure is successful, schools throughout the state can generate estimates of the approximate level of substance use of their own students by identifying the most comparable cluster of schools. The results of this procedure will be provided in a supplemental report.

THE POPULATION AND SAMPLES

There are 58 counties in California and 884 regular and continuation high schools. The most recent school enrollment data for California high schools reveal great differences. Enrollments vary from as high as 3,500 students to less than 25. In addition, California high schools are scattered over an enormous geographic area, with heavy concentrations of high enrollment schools in the three urban areas of San Francisco, Los Angeles and San Diego, and more sparsely distributed, generally smaller schools, in rural, desert and mountainous areas.

Grade Levels Assessed

The secondary school years typically span grade levels 7 to 12 or, roughly, ages 12-13 to 17-18. As in earlier surveys at the local level, resource limitations made it inappropriate to assess each of the six secondary grade levels. As was also the case in earlier surveys, grades 7, 9 and 11 were selected for the statewide survey.

There were three reasons for this choice. First, while there is no question that some students experiment with alcohol and other drugs even earlier, the 7th grade does represent the entry level both to the teenage years and, in most cases, to secondary school. Seventh grade data thus provide a logical baseline or starting point. Second, grade 9 marks the end of junior high or the beginning of high school, depending on school organization, clearly another important transitional year. Finally, grade 11 is the next to last year of high school. School authorities have consistently preferred a grade 11 over a grade 12 assessment on the grounds that the last year of high school is too late to introduce new prevention components into the curriculum. Since the statewide survey also focuses on prevention, it was decided to continue the earlier policy of administering the survey to 11th rather than 12th grade students.

Given the resources allocated to the project, it was clear from the outset that no more than 100 schools, or 50 senior high and, at most, 50 middle or junior high schools, could be included in the survey. Moreover, there had to be a sufficient number of students assessed at each school to allow for a

meaningful summary report of local data for those schools that requested one. The major sampling problem thus was selecting a relatively small sample of schools which would be representative of the state as a whole, and which also would allow for useful comparisons among different types of schools, such as among urban, suburban, and rural schools.

Sampling Schools: Senior High

Since it was vital that a geographically balanced sample be selected, it was first appropriate to divide the state into several regions so that schools could be sampled within each region in a number approximately representative of total student enrollment in that region.

The state was divided into the following six regions: San Francisco, Los Angeles, San Diego, Northern, Central, and Inland/Southern. The list of counties included in each region is provided in Appendix I.

Since each region contained a relatively large number of high schools, relevant stratification variables were needed to ensure adequate representation of within regional variation on key school level characteristics. For example, if a region contained schools of very high as well as very low enrollment, it would be important to insure selection of both high and low enrollment schools. Since relatively few schools would be selected within each region, mere random selection without stratification could easily result in significant under or over representation of one of the two types of schools.

Next, variables which might serve as stratification variables were examined. The State Department of Education kindly provided a current (1984-1985) data tape from the California Achievement Testing Program (CAP) which included three relevant school level variables: (1) senior class enrollment (while total school enrollment was also available, this statistic is influenced by the number of grade levels in a given school); (2) average socioeconomic status of parents (SES), based on an index of average parent education for students enrolled in the school; and (3) percentage of non- or limited-English-speaking (NES and LES) students.

Not available was the percentage of minority students. The percentage of NES and LES students obviously reflects only a part of the minority student

population, since it does not include minority students who are native English speakers. Despite the lack of a direct measure of minority student population, it was felt that the regional sampling plan, which included SES as one of the stratification variables, would ensure a balanced racial and ethnic distribution of students.

Next, the three stratification variables were dichotomized roughly at their respective medians as follows:

- Grade 12 enrollment: 199 or fewer vs. 200 and above
- Percent NES/LES: 10% or less vs. 10.1% and higher
- Average parent education index: less than college graduate vs. college graduate or beyond

These variables along with the six geographic regions defined 48 sampling cells. In other words, for each region there were eight potential combinations of the three dichotomized variables.

A list of all senior high schools in each cell was then generated. This process revealed that 10 of the 48 cells contained no schools. For example, Region 2 (Los Angeles) had no low enrollment schools with a high LES/NES percentage. In addition, eight other cells were virtually empty. Since resource constraints dictated that no more than 50 high schools be included in the study, and since sampling within cells was to be roughly proportional to the number of schools in the cell, these eight cells were also dropped from the sampling plan. Ultimately, 30 of the potential 48 cells for the state as a whole were retained for the sampling process.

The data on schools revealed that 48 high schools out of a statewide total of 884 had senior class enrollments of less than 25 students. Since a maximum of only 50 senior high schools was to be included in the sample, representation of this group of very small schools would have made it impossible to carry out the sampling plan and at the same time achieve the intended sample of approximately 8,000 students. The 48 high schools with senior class enrollments of 24 or less were therefore eliminated from the population to be sampled. The total 1984-1985 senior class enrollment of the 836 schools included in the reference population was 245,627 students. This population includes an unknown number of limited and non-English speaking students who were excluded from the sampling at the school level.

As indicated above, the number of schools to be assessed in each cell was determined by (a) the total number of schools in the cell and (b) the maximum of 50 senior high schools to be selected for the state as a whole. Given these limitations, the SAS PROC PLAN program was used to generate a set of random numbers for each cell. In order to allow for replacement in case the school initially contacted did not agree to participate, twice as many random numbers were generated per cell than were needed for the final cell sample. The schools whose sequence numbers corresponded to the random numbers were then identified. Finally, half of the schools so identified in each cell were randomly assigned to the initial sample, with the other half constituting the replacement group.

Fifty senior high and continuation high schools were thus identified along with another 50 replacement schools. Four of the first set of high schools were unable to participate and were replaced by four schools from the same cells of the replacement set. Forty-five senior high and continuation high schools ultimately returned completed questionnaires. Three schools which had originally agreed to participate did not manage to administer the questionnaire by the time the deadline (February 10, 1986) was reached. Two other schools reported that the completed questionnaires had been returned, but had apparently been lost in shipment. While five high schools were lost, only one cell of the sampling plan was left not represented--a single school cell in Region 2 (Los Angeles). In general, the obtained sample is quite close in composition to the planned sample.

Sampling Schools: Intermediate

Unfortunately, statewide data comparable to that used to stratify the high school sample were not available on junior high and intermediate schools. However, a reasonable alternative plan was devised. Participating high schools were asked to name a "feeder" junior high or intermediate school sending most or all of its students to each participating high school. It was reasoned that a sample of such schools would reflect in a reasonably accurate way the sampling variables used to select high schools. High enrollment high schools would be likely to receive students from similarly large intermediate schools, and so on for the other stratification variables. Feeder intermediate schools would also be located in the same communities as their high

schools. While it would be preferable to test these assumptions directly were appropriate data available, the arguments for comparability seem sufficiently strong to accept the relevance of the intermediate sample.

In the case of continuation high schools, four of which were included in the sample, intermediate schools were not identified. Continuation high schools have very small enrollments and draw students from entire school districts. This consideration led to the selection of 46 junior high or intermediate schools, or one for each high school sampled other than continuation high schools.

Completed questionnaires were ultimately received from 42 of the intermediate schools contacted. Loss of four of the schools was for the same reasons cited for senior high schools. Again, only one cell was empty, another (but different) single high school cell in Region 2.

Sampling at the School Level

Participating schools were provided with detailed instructions for drawing a within-school random sample. Details of this and other procedures for administration and return of the questionnaires were sent to the school principals (see Appendix II). The schools were asked to draw a random sample of 25% of the student body at the grades assessed. It was assumed that approximately 20% of the students would be available for testing on the date selected by the school. For very small schools a minimum of 10 students was set even if this exceeded 25% of the student body.

The decision to assess approximately 20% of the students at each school was based on the following considerations: Prior experience has demonstrated that it is helpful from a motivational perspective to provide a confidential local report to school principals if requested. However, the consequence of this decision is that the sample size at each school must be large enough to be credible to the statistically sophisticated as well as to principals and other nonstatisticians. Prior experience also suggests that the 20% figure per school meets both of these considerations, except for very small schools (such as most continuation high schools) where it is advisable to establish some minimum number.

THE QUESTIONNAIRE

The same questionnaire was administered to 9th and 11th grade students. A somewhat shorter version, making fewer demands on reading comprehension skills, was developed for students in grade 7. Both versions of the questionnaires devolved from questionnaires used previously in surveys done in Orange and Ventura Counties and the Conejo Valley School District.

The Ninth and Twelfth Grade Questionnaire

Questions assessing the use of specific substances were taken originally from questions used in a longitudinal investigation of adolescent drug use sponsored by the National Institute on Drug Abuse and conducted by the UCLA Center for the Study of Adolescent Drug Abuse Etiologies. Other questions were developed in previous surveys to assess attitudes and experiences of students in relation to alcohol and other drug use. Finally, a new set of questions on the type and intensity of alcohol/drug prevention education was developed for the California survey. Brief descriptions of specific areas of content follow.

Demographic information: On the face sheet of the questionnaire students were asked to write in the name of their school as well as their grade and age in years. They also were asked to check their sex and ethnic group, the latter from the following categories: Asian, Black, Latino/Mexican/Hispanic, American Indian, White/Anglo, and Other.

Single substance use: Students were asked to indicate how often in the past six months they had used each of 17 substances without a doctor's prescription. They responded on the following scale: 1 = never; 2 = once or twice; 3 = a few times; 4 = once a month; 5 = once a week; 6 = once a day; and 7 = more than once a day. Three forms of alcohol (beer, wine and liquor) were included in the list along with common illicit substances such as marijuana and medically controlled substances such as barbiturates. Where appropriate, "street" names for substances were also provided, e.g., for cocaine the terms "coke," "snort," "snow," and "cocao paste" were listed.

Polydrug use: One question asked for the number of times in the previous six months the student had used more than one drug on the same occasion, for example, beer and marijuana. Response alternatives defined a 5-point scale from "never/don't use" to "often, more than 10 occasions."

Age of first use and intoxication: Students were asked to write in, if appropriate, the age at which they first (a) tried alcohol, (b) felt high or intoxicated from alcohol, and (c) used alcohol on a regular basis (defined as at least once per month). The same questions were repeated for drugs other than alcohol.

Substance used for first high: A single question asked, if appropriate, the substance or substances used the first time the student felt high or intoxicated. In addition to the negative response, the alternatives were: alcohol (beer, wine, liquor, etc.); marijuana or hashish (grass, weed, hash); uppers (amphetamines or cocaine); psychedelics (LSD, mescaline, etc.); mushrooms (fungus, "schrooms"); and other.

Peer acceptance of alcohol/drug use: Two questions assessed the degree of approval vs. disapproval the respondent's closest friends would be likely to feel toward another student who (a) gets obviously intoxicated on drugs or alcohol on a regular basis or (b) uses regularly but does not show signs of intoxication. Response options varied from "would avoid, see as unhealthy or unfortunate" to "my friends are pretty much like that student as far as drug and alcohol use is concerned."

Perceived harmfulness of regular alcohol/drug use: Students were asked to rate the harmfulness of regular (daily or almost daily) use of alcohol and marijuana on a 5-point scale of "harmless" to "extremely harmful."

Adults known by student who use alcohol/drugs: Students were asked to indicate the number of adults they knew who used alcohol, marijuana, cocaine, or pills on a 5-point scale from "none" to "all."

Parents' acceptance of alcohol/marijuana use by student: Two questions assessed perceptions of parental acceptance of alcohol vs. marijuana use by the student. The response scales varied from "strongly against" to "strongly in favor."

Cigarette smoking: Students were asked how often in the previous month they had smoked cigarettes. The response scale varied from "never, I don't smoke cigarettes" to "more than a pack (20) a day."

Sources of knowledge about drugs: Respondents were asked to indicate sources of their knowledge about drugs from the following list: friends, parents, school classes or programs, and own experience.

Sources of drugs: Students were asked where students at their school got drugs. Response options included home, school, parties and social events outside school, friends outside school, dealers, other sources.

Reasons for student alcohol/drug use: Respondents were asked to indicate one or more reasons why students used alcohol or other drugs. Responses included getting away from problems, experimentation, friends' use, to feel good, and lack of other things to do.

Reasons for not using alcohol/drugs: Students were asked to select "good reason(s)" for not using alcohol or other drugs. Responses included danger of becoming an addict or alcoholic, getting into trouble with authorities, loss of friendships, disappointing parents or other adults, and disappointing self.

Experience with school prevention education: Five distinctive types of prevention education were described and illustrated. Students were asked whether in the last year they had taken a "school class or course" in each. The five types of prevention were: information (about alcohol and drugs); refusal skills training; health and safety in relation to drugs; making decisions in relation to personal goals and values; and alternatives to drugs and alcohol. Each type of prevention education was briefly illustrated with examples of activities. Students who responded "yes" to each type were asked to indicate the time they had spent in the class or course. The latter scale varied from a week or less to one semester or more. Students who responded positively to at least one of the types of prevention were also asked whether the class or course was taught by a regular teacher or counselor, policeman/woman, former drug user, doctor, or parent.

Rating of drug/alcohol education: Students were asked to rate the quality of any drug/alcohol education they had taken during the previous year.

Effect of drug/alcohol education: Students were asked to check any of eight possible effects of all prevention education they had taken in school. Response options were both positive, e.g., "learned how to resist pressure from others to use drugs or alcohol when I didn't want to" as well as negative, e.g., "has not affected me (have not learned anything; has not been meaningful)."

Academic performance and absences: Students estimated their average grade in school for the school year on a 5-point, A-to-F scale. They were also asked to report how many times during the current school year they had been absent from school when they were not sick. Previous research has shown these two items of information to be highly predictive of drug/alcohol use.

The Seventh Grade Questionnaire

The questionnaire administered to 7th grade students was identical to the senior high questionnaire in the case of the following groups of questions: demographic information; substance use items; age of first use and intoxication (except that the two questions on age of first regular use were eliminated); harmfulness of alcohol and drugs used regularly; parents' opinion about alcohol vs. marijuana use by student; use of cigarettes; sources of knowledge about drugs; sources of drugs; reasons for not using alcohol or other drugs; estimated academic performance; and absences for reasons other than being sick. The relatively complex questions on prevention education were not included nor were the items on peer acceptance of drug and alcohol use.

Additional questions were written for the 7th grade questionnaire:

Attitude of best friends about alcohol/drugs: Two questions asked about the attitudes of the student's best friends about alcohol and drugs. In addition to a "don't know" option, responses varied on a scale from "already tried it" to "probably will never want to drink (use) alcohol (drugs)."

School learning relating to drugs: Seventh grade students were asked to indicate whether they had learned anything in school classes about any of the following: effects of different drugs; how to say "no" to peers who offer drugs; physical damage caused by drugs; how to make decisions in light of personal values; alternatives to drugs and alcohol.

The senior and junior high questionnaires were each designed to be completed by English-speaking students in 15-30 minutes. Total assessment time, including instructions and going to and from the testing room, should not have exceeded one class period.

Securing the Cooperation of School Districts and Schools

A letter from Attorney General John K. Van de Kamp was sent to superintendents of all school districts from which one or more schools had been selected. The letter explained the nature and significance of the survey and the commitment requested from the district. Response to the letter was almost universally positive, with only one district declining to participate. This district was replaced in the sample. A copy of the letter sent to superintendents is included in Appendix III.

Once the superintendent had agreed to participate, often after consulting his or her school board, letters were sent from the survey director to the principals of the schools. The nature and purpose of the survey was again explained in these letters. Instructions on how to conduct the survey were also provided (Appendix II).

All principals were telephoned by project staff after the letters had been received. Regular telephone contact was maintained with principals or their designates throughout the period of the survey.

Securing the Cooperation of Parents

A sample letter to parents was provided to participating schools. The letter explained the purpose and significance of the survey and assured parents that their children were selected randomly rather than because they were suspected of drug or alcohol use. Parents were also assured that participation was voluntary and that their children could withdraw without prejudice. A Spanish translation of the letter was made available for schools that requested one. A copy of the English-language letter is included in Appendix II.

Administration of the Questionnaire

Details on the conditions recommended for administration of the questionnaire are included in Appendix II. As in previous surveys, it was recommended

that students be surveyed in an appropriate room other than their own classroom. Adequate proctoring was also recommended, but with the proviso that neither proctors nor other students be able to observe responses made to specific questions. It was also recommended that the principal or other authority begin the session by stressing the importance of the survey and its voluntary and anonymous nature. Schools were urged not to have teachers or anyone else pick up the completed questionnaires from individual students, but rather, to allow students to place their questionnaires in a box before leaving the room.

PREPARING THE DATA: THE FINAL SAMPLE

Before analysis, the questionnaire data were checked for inconsistencies and improbable response patterns. The data were also weighted statistically so as to reflect as accurately as possible the precise characteristics of the populations studied. These two processes will be described briefly. In addition, the number of cases used in the analyses will be provided by grade, sex, and ethnic group.

Checking the Data

All of the 7,585 questionnaires returned were inspected clerically. Indistinct or partial responses on the face sheet were corrected where possible. Questionnaires in which one or more pages had been left incomplete were eliminated at this point, resulting in the loss of 39 questionnaires. In addition, 121 questionnaires indicating that students were in grade 10 or 12 (instead of grades 9 or 11) were also removed from the sample.

A second stage of "data cleaning" occurred once the data were on computer tape. All respondent records were scanned for two types of inaccuracies: (a) improbably high levels of alcohol and other drug use and (b) inconsistent responses.

Improbable levels of drug/alcohol use: Prior experience has shown that when students are convinced that their responses are genuinely anonymous, a tiny percentage, generally less than one half of one percent, will report levels of drug and alcohol use that would almost certainly be incompatible

with attending school. The most obvious response of this type is one in which a student checks "more than once a day" for all of the 17 types of substances on the questionnaire. A few other patterns are almost equally improbable, such as claiming daily use of at least three powerful psychoactive substances, e.g., heroin, cocaine, and hard liquor.

As in previous surveys, the records for respondents checking daily use of three or more psychoactive substances were printed out and examined. Thirty-four records appearing to report improbably high levels of drug and/or alcohol use were removed from the file. Some might argue that a seriously drug-involved respondent conceivably could use the three drugs just cited daily or more often. However, at the very worst, deletion of such cases moves the results for the sample as a whole in a more conservative direction. That is, the results reported in the next sections are more likely to underestimate the amount of drug and alcohol use than to overestimate it, a preferable alternative from the perspective of needs assessment. At the same time, the 34 improbable records removed are a very small percentage of the more than 7,500 questionnaires returned.

Inconsistent response patterns: Comparison of certain items in the questionnaire made it possible to check for inconsistencies. In particular, by comparing the substance use items with the age of first use items, students who reported drug or alcohol use in the previous six months, but who chose the "never" response when asked how old they were when they first tried alcohol vs. other drugs, could be identified. Questionnaires with such serious inconsistencies were considered to be untrustworthy and better eliminated. Twelve such questionnaires were identified and the corresponding cases removed from the file.

Combining all of the reasons given above, a total of 206 questionnaires were removed from the data set, or 2.7% of the initial sample, leaving a total of 7,379 usable questionnaires.

Weighting the Data

The obtained sample corresponded rather closely to the sample projected from the stratification variables. However, a statistical weighting procedure was developed to adjust for (a) deviations from the 20% sample requested at

the school level and (b) deviations from the intended sample size at the cell level (where "cell" refers to a particular combination of region, senior class enrollment, SES, and % LES/NES). This weighting procedure used the California Achievement Program senior class enrollment figures for high schools cited in the earlier section on sampling. Details of the mathematics of this procedure, as well as the computer programming necessary to carry it out, are included in Appendix IV.

The weighting procedure made it possible to generate adjusted means and percentages that are exactly representative of the population sampled except, of course, for random sampling error. That is, over or under sampling of students in particular schools, or schools in particular cells, are compensated for in the weighting procedure.

To the extent that the final sample was representative of the intended sample, differences between weighted and unweighted means would be correspondingly small. Table IV-1 in Appendix IV provides this comparison. Inspection of the table reveals that the effect of the weighting was indeed slight. Differences between weighted and unweighted means by grade level for the 17 substances seldom exceeded .03. The maximum difference (for wine at grade 11) was .07.

Number of Cases in the Sample

Table 1 presents the sample by grade level broken down into number and percent of male and female students and total. The final sample used in the analyses which follow numbers 2,087 students in grade 7; 2,533 students in grade 9; and 2,759 students in grade 11.

TABLE 1

Number of Respondents by Sex and Grade

Sex	Grade 7		Grade 9		Grade 11	
	N	%	N	%	N	%
Male	1,052	(50.9%)	1,240	(49.4%)	1,350	(49.5%)
Female	1,014	(49.1%)	1,269	(50.6%)	1,378	(50.5%)
Totals*	2,087		2,533		2,759	

*Include cases not identifying sex

Table 2 gives the number of respondents by ethnic group. Comparing the grade levels, it is apparent that the percentage of "White/Anglo" rises with increasing grade level, while the percentage marked "Other" declines. Additional, somewhat smaller, shifts occur across grade levels in other groups. There is probably no single reason for these shifts in percentages. In addition to the fact that different percentages chose the "Other" category at the three grade levels, there are undoubtedly different drop-out rates among ethnic groups, with the effects strongest at the 11th grade. The drop off in percentage of Hispanic students for grade 11 (compared to the other two grades) is undoubtedly due in part to the loss in shipping of questionnaires from a large, urban high school located in a predominantly Hispanic neighborhood of Los Angeles.

TABLE 2

Number in Ethnic Groups by Grade

	Grade 7		Grade 9		Grade 11	
	N	%	N	%	N	%
Asian	183	(8.9%)	218	(8.7%)	290	(10.5%)
Black	197	(9.5%)	245	(9.7%)	322	(11.7%)
Hispanic	518	(25.1%)	607	(24.2%)	545	(19.8%)
American Indian	84	(4.1%)	75	(3.0%)	65	(2.4%)
White	811	(39.2%)	1161	(46.2%)	1375	(50.0%)
Other	274	(13.3%)	207	(8.2%)	154	(5.6%)

DESCRIPTIVE FINDINGS OF THE SURVEY

Descriptive or summary findings of the survey begin with the results for frequency of substance use and age of first use and intoxication. Additional topical subsections deal with perceived environmental influences on drug and alcohol use, attitudes and beliefs about alcohol and drug use, and prevention education. The last section of the findings assesses whether there are differences in drug/alcohol use associated with geographical regions or ethnicity of the respondent and whether experience with various types of prevention education is associated with more vs. less use.

The calculation of estimates of error for complex samples like the one drawn in this research is itself a complex procedure. Appendix V reviews relevant considerations and refers to published error estimates based on standard procedures for estimating confidence intervals in complex samples.

Use of Alcohol and Other Drugs

In this section various measures of frequency of use are presented first, followed by information on age of first use and intoxication.

Frequency of use: Respondents were asked to indicate how frequently they had used each of 17 substances in the previous six months. Use under a physician's prescription was specifically excluded in the instructions to this section of the questionnaire.

The percentage of students at each grade level who used each of the 17 substances at least once in the previous six months is given in Table 3. Substances are ranked in the table according to frequency in the 11th grade sample.

TABLE 3

Ranked Percentage Using Each Substance at Least Once in Previous Six Months for Grades 7, 9, and 11

Substance	Rank for Grade 11	Grade 7	Grade 9	Grade 11
Beer	1	41.1%	61.0%	69.2%
Wine	2	40.1%	56.1%	62.0%
Liquor	3	20.8%	43.7%	53.1%
Marijuana	4	9.7%	32.2%	42.1%
Cocaine	5	2.8%	9.7%	17.6%
Amphetamines	6	2.2%	10.5%	15.3%
Inhalants	7	17.6%	16.3%	13.8%
Hashish	8	1.7%	9.8%	13.1%
Other Narcotics	9	1.9%	5.8%	9.4%
Mushrooms	10	3.4%	5.8%	8.8%
Tranquilizers	11	2.7%	7.2%	8.1%
LSD	12	1.4%	4.1%	6.0%
Sedatives	13	1.0%	3.9%	5.4%
Barbiturates	14	1.2%	4.3%	4.0%
PCP	15	1.5%	3.1%	3.1%
Other Psychedelics	16	1.2%	2.0%	2.5%
Heroin	17	1.1%	1.1%	1.2%

California students at all three grade levels reported more frequent use of alcohol than any other substance surveyed. By grade 11, seven-tenths (69%) of the students reported drinking beer. More than half (53%) had used spirits in the previous six months. The number of 9th grade students reporting alcohol use was only moderately lower (61% for beer and 44% for spirits). There was a larger drop-off for 7th grade students, with 41% reporting beer drinking and 21% consumption of spirits. Although these percentages include students who may have used a given substance only once in the previous six months, it is still evident that at least some use of alcohol is engaged in by the majority of students in grades 9 and 11, and by a substantial minority even as early as grade 7.

Marijuana was the next most frequently used drug among California secondary school students. Ten percent of 7th grade, 32% of 9th grade, and 42% of 11th grade students reported at least some marijuana use in the previous six months. Hashish, ranking eighth for 11th grade students, is a concentrated form of marijuana. Cocaine, a very powerful illicit stimulant drug, was used by 3%, 10%, and 18%, respectively, of the students in the three grade levels. The pattern for amphetamines, another class of stimulant drugs, was similar to cocaine, although the latter was more frequently used by 11th grade students.

Inhalants are a class of often disparate substances united by a common mode of ingestion. As in previous surveys at the county level, inhalant use was most frequent among the youngest students. Eighteen percent of 7th grade students reported at least some inhalant use. There was only a moderate drop-off with increasing age, the percentages falling to 16% for 9th graders and 14% for 11th grade students. Inhalants are unique among the substances assessed in being the only instance where use decreases as students mature.

Examples given for the inhalant question were "glue, paint, butane, gasoline, amyl nitrate, rush, and poppers." Most of these substances contain hydrocarbons and other chemicals highly toxic to brain cells. Inhalant use is therefore a particularly disturbing phenomenon. Younger children as well as poor children are particularly susceptible to use of cheap, commonly available inhalants such as gasoline and paint thinner.

None of the other substances were used by as many as 10% of the students at grade 11, although "other narcotics" such as "codeine, morphine, opium, Demerol, or Percodan" come close at 9.4% of 11th grade students. The entire class of psychedelic or hallucinogenic drugs was used relatively infrequently, with "mushrooms" highest at 9% of 11th graders. LSD, commonly identified with the "counterculture" of two decades ago, was used by only 4% of 9th grade and 6% of 11th grade students. PCP, a substance with unpredictable (and lasting) effects, is well down at 1.5% of 7th grade and 3% of both 9th and 11th grade students. Heroin is at the bottom of the list for all three grade levels at no more than about 1% of the respondents.

In the next two tables seven of the most commonly used of the substances are compared for the percentage of students reporting (a) weekly or more frequent use or (b) daily or more frequent use.

TABLE 4

Percentage of Students Using Seven Commonly Used Substances Once a Week or More Often by Grade

Substance	Grade 7	Grade 9	Grade 11
Beer	2.4%	11.9%	20.1%
Liquor	1.2%	7.0%	9.6%
Marijuana	0.9%	9.3%	13.4%
Cocaine	0.4%	1.4%	3.0%
Amphetamines	0.2%	1.2%	2.4%
Inhalants	0.8%	1.1%	0.9%
Mushrooms	0.2%	0.6%	0.4%

Table 4 shows that beer was the only substance used weekly or more often by more than 1% of 7th grade students (2.4%). Weekly beer drinking was reported by 12% of 9th grade and 20% of 11th grade students. The percentages for spirits are about half that for beer and, by grades 9 and 11, definitely less than for marijuana. Weekly use of marijuana was reported by 9% of 9th graders and 13% of 11th graders. The next most frequently used drug on a weekly basis was cocaine, reported by only 3% of 11th grade students.

TABLE 5

Percentage of Students Using Seven Commonly Used Substances Once a Day or More Often by Grade

Substance	Grade 7	Grade 9	Grade 11
Beer	0.7%	2.4%	3.0%
Liquor	0.2%	1.4%	1.4%
Marijuana	0.4%	5.2%	7.4%
Cocaine	0.2%	0.7%	1.1%
Amphetamines	0.1%	0.4%	1.0%
Inhalants	0.5%	0.6%	0.2%
Mushrooms	0.2%	0.3%	0.1%

When the criterion is daily or more frequent use, marijuana, for the first time, replaces alcohol as the most frequently used drug. Table 5 reveals that 7.4% of 11th grade and 5.2% of 9th grade students used marijuana daily. Daily beer use was reported by only 3% of 11th graders and 2.4% of 9th grade students. Daily use of other substances by both 9th and 11th grade students is low enough to be virtually negligible. The same is true for all of the substances for 7th grade students.

Daily use of an illicit, psychoactive substance by 14- and 16-year-old adolescents at the very least defines a high risk group. It is not possible to determine from questionnaire data how many of these students can be considered to be already psychologically dependent or addicted. The most conservative statement that can be made is that many of these students are in great danger of developing a level of dependency that will lead to addiction.

The full impact of these findings can best be appreciated if the percentage of daily marijuana users is projected to the statewide total for the grade level. These totals were calculated for the current data as a part of the weighting procedure, although the calculations were based on 12th grade rather than 11th grade enrollments for reasons cited earlier. Projected statewide to the total population of 836 high schools used in the survey, 7.4% daily marijuana users in grade 11 amounts to an estimated 17,653 students who use marijuana daily and who, at the very least, constitute a group of individuals at high risk. Moreover, this is a conservative estimate. The

12th grade enrollments used in the weighting are generally slightly lower than 11th grade enrollments due to the cumulative effect of student drop-out. Using the same enrollment projection for grade 9 yields an estimate of 12,149 daily users based on the 5.2% who reported daily use. This estimate is even more conservative than the 11th grade estimate for the reason just cited. Comparable figures for grades 10 and 12 could be added, yielding an estimate of over 60,000 California secondary school students who use marijuana daily.

Polydrug use: The percent of students who used more than one drug on the same occasion (polydrug use) is reported in Table 6. Polydrug use refers to any combination of alcohol and a drug other than alcohol, or any combination of two or more drugs other than alcohol. This is an especially dangerous form of drug use, since the effect of different drugs used together is often interactive or synergistic, rather than merely additive. There is often the risk of loss of consciousness and life-threatening overdose, especially for inexperienced users.

TABLE 6

Percentage Reporting Polydrug Use in Previous Six Months by Grade

	Grade 7	Grade 9	Grade 11
Once or Twice	7.7%	15.3%	17.8%
3 to 6 Times	2.1%	7.0%	9.1%
7 to 10 Times	0.5%	2.5%	5.4%
10 or More Times	0.5%	4.2%	7.0%
Total Use	**10.8%**	**29.0%**	**39.3%**

Table 6 reveals that 11% of 7th grade, 29% of 9th grade, and 39% of 11th grade students engaged in polydrug use at least once in the previous six months. Combining the last two rows of the table gives the percentage of students who engaged in polydrug use at least once per month: 1% of 7th grade, 7% of 9th grade, and 12% of 11th grade students. The latter figure, projected to the total population of 11th grade students, amounts to 29,442 statewide. Finally, the 9th and 11th grade percentages for 10 or more occasions of polydrug use in the previous six months (4.2% and 7%) are relatively close to the percentage of daily marijuana users at this grade level and may indeed represent virtually the same group of users.

First drug of intoxication: Ninth and eleventh grade students were asked to indicate the **first** substance on which they had gotten high or intoxicated. A "never high/intoxicated" alternative was included.

This item is of special interest, because it provides a direct estimate of the total percentage of students who, irrespective of substance, have been high or intoxicated at least once. This turns out to be 54% of ninth grade and 69.5% of 11th grade students, more than will be reported for either alcohol or other drugs taken separately (see Tables 9 and 11). In other words, over half of 9th graders and over two-thirds of 11th graders have, in their own judgment, been high or intoxicated from at least one substance.

Turning to specific types of substances, 38% of 9th graders and 53% of 11th graders reported their first intoxication was from alcohol. Marijuana accounts for the only other significant percentages, with 14% of 9th graders and 15% of 11th graders reporting their first high on this substance. "Uppers" and psychedelic drugs accounted for less than 1% of the responses at each grade level. Alcohol is thus about three times as likely to be associated with a student's first high as are all other substances combined. The special status of alcohol as a gateway or entry drug for most young people is apparent from these findings.

TABLE 7

Percent of 9th and 11th Grade Students Experiencing First "High" on Five Classes of Substances vs. "Never High"

Substance	Grade 9	Grade 11
Never High/Intoxicated	46.0%	30.5%
Alcohol	38.2%	52.8%
Marijuana/Hashish	14.3%	15.0%
Uppers (Amphetamines)	0.3%	0.3%
Psychedelics/Mushrooms	0.2%	0.4%
Other	1.0%	0.8%

Age of first alcohol use: Table 8 summarizes student reports on the age they first tried alcohol. The most interesting figures in this and the age tables which follow lie on the diagonal running downward from left to right

(bold face numbers). By age 12, or grade 7 for most students, 58% had tried alcohol at least once. For 9th grade students, 78% reported having tried alcohol by age 14, the modal age for 9th graders. Finally, 85% of 11th grade students had tried alcohol by age 16, the modal age at this grade level.

TABLE 8

Alcohol Experimentation: Percent Trying Alcohol at Least Once by Age and Grade

	% by Age 11 (Grade 6)	% by Age 12 (Grade 7)	% by Age 14 (Grade 9)	% by Age 16 (Grade 11)
Grade 7	50.8%	57.8%		
Grade 9	41.0%	56.2%	77.6%	
Grade 11	29.1%	37.9%	67.4%	85.0%

Age of first alcohol intoxication: Table 9 provides data on the age at which students first experienced intoxication from alcohol. By age 12, 16% of 7th grade students, by age 14, 47% of 9th grade students, and by age 16, 65% of 11th grade students reported alcohol intoxication. There is no doubt that the first experience of intoxication is a significant one. By age 16, an estimated 154,690 for the population of high schools in the survey or almost two-thirds of the 11th grade survey population had this experience by their own report. Knowing what it is like to be intoxicated from alcohol is statistically a "normal" experience by the 9th or 10th grade, assuming normality can be defined as an experience characteristic of more than half of a population. The climate of peer expectation and acceptance is likely to be supportive of alcohol use as a result.

TABLE 9

Alcohol Intoxication: Percent Intoxicated at Least Once by Age and Grade

	% by Age 11 (Grade 6)	% by Age 12 (Grade 7)	% by Age 14 (Grade 9)	% by Age 16 (Grade 11)
Grade 7	11.7%	15.8%		
Grade 9	12.8%	22.3%	47.1%	
Grade 11	9.0%	15.2%	42.5%	65.2%

Age of first other drug use: Table 10 provides information on the age at which students first tried a drug other than alcohol. Eleven percent of 7th grade students by age 12, 36% of 9th grade students by age 14, and 51% of 11th grade students by age 16 had tried such a drug. By the criterion just proposed, other drug experimentation is also a "normal" experience by age 16, at least for the majority of California high school students.

TABLE 10

Other Drug Experimentation: Percent Trying Other Drug(s) by Age and Grade

	% by Age 11 (Grade 6)	% by Age 12 (Grade 7)	% by Age 14 (Grade 9)	% by Age 16 (Grade 11)
Grade 7	6.6%	10.7%		
Grade 9	7.0%	14.3%	35.7%	
Grade 11	5.8%	10.8%	29.9%	51.4%

Age of first other drug intoxication: Table 11 reveals that 8% of 7th grade students reported having been high on a drug other than alcohol by age 12. For 9th grade students the figure is 30% by age 14, and for 11th graders it is 45% by age 16. Projected to the total survey population for grade 11, this amounts to an estimated 106,923 students for one grade level alone.

TABLE 11

Other Drug Intoxication: Percent High at Least Once by Age and Grade

	% by Age 11 (Grade 6)	% by Age 12 (Grade 7)	% by Age 14 (Grade 9)	% by Age 16 (Grade 11)
Grade 7	4.4%	8.0%		
Grade 9	5.7%	11.4%	30.3%	
Grade 11	5.2%	8.8%	25.1%	45.1%

Cigarette smoking: While it is debatable whether or not nicotine can be considered a psychoactive drug in the sense that the substances dealt with up to this point are psychoactive drugs, there is no question that use of cigarettes is both a health hazard and, according to research, a frequent precursor of drug and alcohol use.

TABLE 12

Frequency of Cigarette Use (%) by Grade

Frequency	Grade 7	Grade 9	Grade 11
Never	84.3%	66.4%	69.2%
Less than once per day	11.7%	20.6%	16.5%
1 or 2 per day	1.4%	3.5%	3.0%
3 to 6 per day	0.8%	3.6%	4.4%
7 to 10 per day	1.2%	2.4%	3.0%
11 to 20 per day	0.2%	1.9%	2.8%
More than 20 per day	0.2%	1.6%	1.1%

Results for cigarette smoking are provided in Table 12. Surprisingly, much less use of cigarettes was reported by students at all three grade levels than was the case for alcohol and other drugs. Only 16% of 7th, 34% of 9th, and 31% of 11th grade students used any cigarettes at all during the previous six months. Differences between 9th and 11th graders were small, with slightly more 9th than 11th grade students (21% against 16.5%) reporting occasional smoking (less than once a day), and marginally more 11th graders than 9th graders (14% compared to 13%) reporting smoking one or more cigarettes per day. In sharp contrast to alcohol and other drugs, there is no meaningful increase in regular smoking between grades 9 and 11. Moreover, the number of regular smokers, even when the criterion for regularity is set as low as one cigarette per day, is low by adult standards. Cigarette smoking by young people appears to be a qualitatively different phenomenon than use of alcohol and other drugs.

Environmental Influences and Student Attitudes

In this section findings on potential influence from parents and peers as well as students' own attitudes about alcohol and drugs are reported.

Adult use of alcohol and other drugs: Adults serve as models for young people in the use of alcohol and other drugs. Younger teenagers often consider the use of substances like alcohol or cocaine to be legitimate for adults. Their own use initially frequently may represent an attempt to peek into the adult experiential world in order to find out what it is like to feel adult.

Ninth and 11th grade students were asked how many adults they know who use four classes of substances (alcohol, marijuana, cocaine, and "pills" such as sleeping pills or tranquilizers). They responded on a 5-point scale from "none" to "all." The results are summarized in Table 13.

TABLE 13

Percent of Students in Grades 9 and 11 Knowing
(a) None (b) Some (c) Many/All
Adults Who Use Alcohol, Marijuana, Cocaine or Pills

Substance/Grade	% Adults Using None	% Adults Using Some	% Adults Using Many/All
Alcohol			
Grade 9	10.4%	39.3%	50.2%
Grade 11	7.1%	35.8%	57.1%
Marijuana/Hashish			
Grade 9	49.0%	33.6%	17.3%
Grade 11	39.2%	40.2%	20.6%
Cocaine			
Grade 9	69.5%	22.9%	7.6%
Grade 11	59.6%	30.1%	10.3%
Pills			
Grade 9	58.2%	30.0%	11.8%
Grade 11	53.4%	33.9%	12.8%

The table reveals that at least half the students in grades 9 and 11 indicated that many or most of the adults they know use alcohol. If the "some" and "many/all" categories are combined, then 90% or more of 9th and 11th grade students know at least some adults who drink.

Contact with adult users of marijuana was considerably less frequent at both grade levels. Only 17% of 9th graders and 21% of 11th graders reported that "many/all" of the adults they know use marijuana or hashish. Combining the last two categories gives the number of students who know at least some adults who use marijuana, or 51% of 9th and 61% of 11th grade students. While fewer students know adults who use marijuana compared to adults who use alcohol, the proportion is still greater than half for both grade levels.

In the case of cocaine and "pills," relatively few students (about 10% irrespective of grade level) reported that many or all of the adults they know are users. Yet, 30% of ninth grade students and 40% of 11th grade students know at least some adults who use cocaine. Similar percentages were reported for "pills."

If these results seem unexpectedly high, remember that younger teenagers may classify a 19- or 20-year-old brother or sister as an adult. The determining factor is not that the model is legally an adult, but rather how the student evaluates the maturity of that individual. There is no question that virtually all secondary school students from grade 9 and above know adults who drink alcohol or that the majority know at least some adults who use marijuana or hashish. Substantial minorities know at least some adults who use cocaine or pills on a regular basis.

Perceptions of parents' attitudes about alcohol vs. marijuana: Students were asked to rate, on a scale of "strongly opposed" to "strongly favor," their parents' attitudes about their own (the students') use of marijuana and alcohol. Results for this question are reported in Table 14.

TABLE 14

Student Perception (%) of Parents' Attitude About Student Use of Alcohol vs. Marijuana

Attitude	Grade 7		Grade 9		Grade 11	
	Alc.	Mari.	Alc.	Mari.	Alc.	Mari.
Strongly Against	63.3%	89.2%	53.1%	86.1%	43.0%	80.5%
Moderately Against	20.3%	4.6%	28.3%	7.2%	31.0%	9.7%
Neutral/Favor	16.3%	6.5%	18.6%	6.6%	25.9%	9.8%

Regardless of grade level or class of substance, students perceived their parents to be more strongly opposed to marijuana than alcohol. The high degree of parental opposition to student use of marijuana declined very little with increasing grade level. Eighty-nine percent of 7th graders and 80% of 11th graders perceived their parents to be strongly opposed to marijuana use.

In contrast, parental opposition to the use of alcohol dropped significantly with grade level, from 63% at grade 7 to 43% by grade 11. Student

ratings thus revealed a double standard among parents about these two substances. While less than 10% at each grade level reported that their parents were either neutral or in favor of marijuana use, 16% of 7th, 19% of 9th, and 26% of 11th graders thought their parents either did not oppose or actually approved of alcohol use by the student. This double standard is hardly surprising in view of the fact that marijuana is an illicit street drug, while alcohol is both legal for adults and widely promoted in the media. However, it is a very unrealistic double standard given the cost in lives and property associated with alcohol use by both teenagers and adults.

Acceptance of regular use by closest friends: As a measure of peer climate, students responded to two vignettes about a hypothetical student who uses drugs or alcohol. The first describes a student ". . . who usually gets loaded on drugs or alcohol at parties and often at school." This vignette refers to the kind of uncontrolled intoxication that is often characteristic of an inexperienced drinker or user. The second vignette describes a student ". . . who uses drugs or alcohol at parties or with friends on a regular basis, but who rarely gets obviously loaded or causes any problems." The student described in this vignette behaves like an experienced adult alcohol or drug user who has developed physical and mental tolerance, e.g., is able to "hold his liquor." The purpose was to assess the degree to which the two types of behavior are perceived as socially acceptable by the students' peers.

Respondents were asked to choose which of the following alternatives would best describe the reaction of their four or five closest friends:

- "would avoid, see as unhealthy or unfortunate"
- "would tolerate, but not be particularly friendly towards"
- "would see as OK and sometimes join in with that person"
- "my friends are pretty much like that student as far as drug and alcohol use is concerned"

TABLE 15

Student Perception for Grades 9 and 11 of Best Friends' Reaction (%) to (a) Student Who Gets High Regularly and Shows It vs. (b) Student Who Uses Regularly But Does Not Show It

Friends' reaction to:	Grade 9	Grade 11
Student who gets loaded		
Avoid	32.0%	24.3%
Tolerate	36.1%	40.0%
Accept/Join	31.9%	35.7%
Student who uses regularly		
Avoid	26.7%	18.9%
Tolerate	34.4%	32.9%
Accept/Join	38.9%	48.2%

The above responses are collapsed into three categories in Table 15 ("avoid," "tolerate," or "accept/join"). Several generalizations can be made. First, compared to 9th graders, 11th grade students see their friends as less likely to avoid, and more likely to join, both types of drinkers or users described in the vignettes. Not surprisingly, perceived peer acceptance of regular drug and alcohol use increases with age.

Second, there is greater divergence between 9th and 11th graders in their willingness to accept the second type of user (uses regularly but does not show it). For example, 36% of 11th grade students compared to 32% of 9th grade students think their friends would join the first type of user (obviously intoxicated). In comparison, 48% of 11th graders compared to 39% of 9th graders think their friends would join the user who behaves in a more adult manner (not showing signs of intoxication).

In one sense the 11th graders are more sophisticated. Like many adults, they see their peers as more accepting of regular alcohol and drug use to the degree that behavioral signs of intoxication do not occur. This acceptance is in another sense misinformed. It ignores the fact that persons who are dependent on drugs tend to have high tolerance and thus often do not show the behavioral signs that less experienced drinkers and users show.

Third, on the positive side for both grade levels, the majority of students feel that their closest friends would avoid or merely tolerate both types of regular users. Even among 11th grade students only 36% believe that their closest friends would join a student who gets obviously intoxicated. However, by grade 11 peer acceptance of the more sophisticated or controlled type of regular user is close to half of the sample. Forty-eight percent of the students reported that their best friends would join or resemble such a student. This particular measure is arguably a key indicator of social climate with respect to alcohol and drug use. Knowing that one's friends accept or join in with people who use or drink regularly renders such behavior socially permissible.

Grade 7 perceptions of best friends' drinking/using: Because the questions just reported are somewhat complex, they were not used on the 7th grade questionnaire. Instead, 7th graders were asked whether most of their best friends (a) had already used alcohol vs. other drugs, (b) had not used or drank yet, but would like to, (c) were unsure whether they should or not, or (d) probably never would. A "don't know" option was also included.

TABLE 16

Grade 7 Students' Perceptions (%) of Best Friends' Use of Alcohol vs. Other Drugs

Response	Alcohol	Other Drugs
Most already used	34.3%	16.8%
Would like to try	4.4%	2.9%
Not sure if they should	5.9%	5.2%
Probably never will	20.1%	46.9%
Don't know	35.4%	28.3%

Results for this 7th grade question are provided in Table 16. Twice as many students reported that their friends had already tried alcohol as had tried "drugs like" marijuana (34% to 17%). Only 20% of 7th grade students predicted that their best friends would never try alcohol compared to 47% who made the same prediction for marijuana. About a third of the students admitted that they "don't know." The social climate in the 7th grade is much more open to experimentation with alcohol than experimentation with marijuana.

Harmfulness of alcohol vs. marijuana: Students rated the harmfulness of frequent use of alcohol vs. marijuana on a scale of "extremely harmful" to "harmless." These ratings are combined into three categories (high, moderate, and low harmfulness) in Table 17.

TABLE 17

Student Ratings (%) of Harmfulness of Frequent Alcohol vs. Marijuana Use by Grade Level

Harmfulness Ratings	Grade 7		Grade 9		Grade 11	
	Alc.	Mari.	Alc.	Mari.	Alc.	Mari.
High	37.9%	71.9%	33.5%	53.4%	44.0%	51.7%
Moderate	52.4%	23.5%	54.9%	39.3%	48.4%	41.8%
Low	9.7%	4.5%	11.6%	7.3%	7.6%	6.5%

It is readily apparent that the percent of students rating frequent use of marijuana as harmful drops significantly between grades 7 and 9 (72% to 53%), but very little after that (51% at grade 11). In contrast, there is no systematic change for alcohol, although there is variability in the harmfulness ratings (38% for grade 7, 34% for grade 9, and 44% for grade 11). Eleventh grade students are at least more aware of the harmfulness of regular alcohol use than younger students and, as a result, there is a smaller difference between alcohol and marijuana at grade 11 (44% to 52% harmful ratings).

Relatively few students at any of the three grade levels rated frequent use of either drug as relatively harmless. These ratings were given by less than 10% of the students. The only exception was for alcohol at grade 9 where 12% of the students consider regular alcohol use to be relatively harmless.

Sources of knowledge about drugs: Students were asked to indicate whether they had learned about drugs from each of four sources: friends, parents, school classes, and their own experience. These results are presented in Table 18.

TABLE 18

Sources of Knowledge (%) About Drugs by Grade Level

Source	Grade 7	Grade 9	Grade 11
Friends	31.6%	58.6%	65.6%
Parents	38.5%	29.4%	29.2%
School Classes	65.6%	54.2%	58.5%
Own Experience	14.0%	23.5%	37.5%

Sixty-six percent of 7th grade students indicated that school classes serve as a source of information about drugs. Parents and friends were cited by 38% and 32%, respectively. By grade 9, friends at 59% were already the most freqently cited source. School classes, while not far behind, dropped to 54% and parents to only 29%. The importance of friends increased to 66% by grade 11, although school classes actually rose somewhat to 58% of the students. Parents remained at 29%. In addition, the importance of the students' own experience rose over the three grade levels to be cited by 38% of the students by grade 11.

The dominant trend in these data suggests the increasing importance among older students of the peer culture as a source of information about drugs. Calls by prevention educators for involvement of peer groups in prevention education are supported strongly by these findings.

Where students get drugs: Respondents were asked, "Where do most kids at this school who use drugs get them?" Response alternatives included home, school, parties or social events outside of school, friends outside of school or parties, and dealers in the community.

TABLE 19

Student Perception (%) of Where Most Drug Users at Their Schools Get Drugs

Source	Grade 7	Grade 9	Grade 11
Home (parents/siblings)	4.8%	7.1%	6.9%
School (friends/dealers)	16.1%	33.3%	40.1%
Parties/events outside school	11.6%	26.9%	33.2%
Friends outside school	17.7%	26.9%	32.2%
Dealers	7.2%	14.2%	20.9%
Other, don't know	48.9%	30.4%	27.0%

Table 19 reveals that the only one of the potential sources of drugs cited relatively infrequently is "at home (parents, brothers/sisters)." Only 5% of 7th graders and 7% of 9th and 11th grade students reported that home is a source of supply for students who use drugs. While there is no single, dominant source among the other alternatives, "at school (friends, dealers)" has a slight edge at grades 9 (33%) and 11 (40%). "Parties, social events outside school" and ". . . friends outside of school or parties" were selected by almost identical percentages of 9th (26%) and 11th (32%-33%) grade students. "Dealers in the community" rank lower at 14% for 9th graders and 21% for 11th graders. Finally, about half of the 7th grade students (49%) indicated "other, don't know" compared to only 30% of 9th and 27% of 11th grade students.

These results reveal that there is no single, dominant source or place where students obtain drugs. Rather, wherever students congregate drugs may be obtained. If school ranks slightly ahead of the other sources, it is because adolescents spend so much of their time together in school. Moreover, the fact that dealers are a relatively minor source of drugs even at grade 11 confirms the widely held view that the distribution of drugs to adolescents is organized primarily through peer networks rather than through direct contact with outside drug dealers.

Reasons for not using alcohol/drugs: Students were asked to indicate which among a list of reasons for not using alcohol or other drugs are "good reasons." Alternatives included becoming an alcoholic or addict, getting into trouble with police or school, losing friends who do not approve, disappointing one's parents or other adults who care, and being disappointed with oneself because of having previously decided not to drink or use.

TABLE 20

Percent by Grade Giving Reasons for Not Using Alcohol or Other Drugs

Reason	Grade 7	Grade 9	Grade 11
Become alcoholic/addict	78.6%	73.4%	78.9%
Trouble with police/school	60.9%	56.9%	60.6%
Lose friends who don't agree	54.4%	42.8%	42.2%
Disappoint parents/others	57.8%	56.3%	60.0%
Disappoint self	(54.5%)*	25.2%	29.6%

*See comment in the text on this particular response.

Table 20 shows that the most commonly cited reason at all three grades is the fear of becoming an alcoholic or addict (79% of 7th and 11th graders and 73% of 9th graders). Getting in trouble with police or school or disappointing parents or other adults were cited slightly less frequently by approximately 60% of the students irrespective of grade level. Losing friends was a somewhat more frequently cited reason for 7th graders (54%), whose friends are less likely to drink or use, than it was for 9th (43%) and 11th (42%) grade students.

The reasons cited so far involve either fear of what others think or fear of personal consequences (becoming an addict). Most are external reasons for not drinking or using in the sense that they depend on the reaction of other people. Likewise, being afraid that one might become an addict does not imply an intrinsic objection to the use of alcohol or other drugs, only fear of the consequences. Is there any sign that positive motives or values incompatible with alcohol or drug use might play a role for at least some students?

The last alternative presented in the question on reasons for not using attempted to get at positive, internal motivation. For 9th and 11th grade students this alternative read: "would disappoint yourself because you have chosen not to drink or use drugs." For 7th grade students the alternative was rewritten for easier reading comprehension: "would not be the kind of person you want to be." The differences in response frequency noted below may in part be due to what in hindsight appears to be too great a discrepancy between the two versions of the alternative. The simpler 7th grade version would have been equally appropriate at grades 9 and 11.

Given the above caveat, the last line of Table 20 reveals that a considerably more substantial proportion of 7th grade students (54%) selected the "intrinsic" alternative than was the case for 9th and 11th grade students (25% and 30%, respectively). Is this because intrinsic motivation to avoid drug and alcohol use is higher for 7th than for 9th and 11th grade students? This is certainly possible, since younger students would be more likely to accept the expressed values of adults who oppose drug use, while older students, much more integrated into peer culture of their own generation, may

often reject such values. Whatever the reason, only 25% of 9th grade and 30% of 11th grade students selected the alternative expressing intrinsic motivation to avoid drug and alcohol use.

Reasons for using alcohol/drugs: Students were asked for their assessment of "why . . . most kids use alcohol or other drugs." This question was asked only at grades 9 and 11. Alternatives included getting away from problems, experimentation, friends who use, feeling good, and nothing else to do. These results are provided in Table 21.

TABLE 21

Reasons (%) Most Kids Use Alcohol or Other Drugs for 9th and 11th Grade Students

Reason	Grade 9	Grade 11
Get away from problems	51.3%	52.6%
Experiment	48.5%	50.1%
Friends use	49.4%	50.3%
Makes them feel good	49.2%	55.2%
Nothing else to do	20.5%	26.8%

There is very little differentiation in the results either among alternatives or between grade levels. About half of the students at grades 9 and 11 select each reason except the last ("have nothing else to do"). The latter is cited by 20% of 9th and 27% of 11th graders. The similarity of the results for the other alternatives probably implies that each is indeed a reason why substantial numbers of students believe they use alcohol or other drugs.

PREVENTION EDUCATION

Questions assessing alcohol and drug prevention education dealt with (a) personal outcomes as perceived by students, (b) experience with different types of prevention, and (c) ratings of the quality of prevention education. There are several rather different approaches to prevention education currently in use or advocated. For the purpose of this study five approaches were identified:

(1) Information, including types of drugs and their effects and why people take drugs;

(2) Refusal skills, or how to say "no" in the face of pressure to use alcohol or drugs, especially peer pressure;

(3) Health and safety in relation to alcohol and drugs, including distinctions between medicine and drugs, avoiding unknown substances, drinking/using and driving, and physiological effects;

(4) Decision-making skills, or how to identify and act consistently with personal goals and priorities, emotions and decision making, and become aware of alternatives and consequences; and

(5) Alternatives to alcohol and drugs, or learning about activities incompatible with drug and alcohol use that are personally meaningful and enjoyable.

School programs are often eclectic, mixing several approaches. Moreover, many authorities suggest that no single approach to preven ion education is sufficient. Students need certain types of information, including accurate information on safety and health hazards, but they also need to develop effective refusal skills including how to say "no" without alienating their peers. They can profit from learning to make decisions by systematically examining the possible consequences of their actions in light of conscious personal goals and values. Finally, many authorities also stress that healthy self-esteem is generated through the development of competencies in activities which require hard-won skills, enterprise, and adventurousness. Such activities are incompatible with alcohol and drug use and provide alternatives to getting high.

What 7th grade students learned: Seventh grade students were given a brief version of a set of questions responded to by 9th and 11th graders on types of prevention education. They were asked to check off ". . . things I learned about alcohol and drugs in school classes or meetings" from a list corresponding to the five types of prevention education just described. These results are provided in Table 22.

TABLE 22

Self-Assessments by Grade 7 Students (%) of What They Learned in Alcohol/Drug Prevention Classes in School

Approach to Prevention	%
Information	71.0%
Refusal skills	66.3%
Health and safety	66.9%
Decision making; personal goals	40.0%
Alternatives to drugs	34.3%
Other	18.9%

Seventy-one percent of 7th graders reported that they had learned something in school about "what drugs do to people; different kinds of drugs." This response alternative refers to the **information** model and was the most frequently cited, though by only a small margin. Sixty-seven percent of the 7th graders reported learning something about **health and safety** ("how drugs and alcohol hurt your body"), and 66% had some training in **refusal skills** ("how to say 'no' to kids who want me to drink or use drugs"). Only 40% reported any work on **decision-making skills** ("how to make good decisions in life; what kind of person you want to be"), while even fewer (34%) cited exposure to **alternatives** ("other things to do besides drugs and alcohol").

Providing information about alcohol and drugs thus remains the dominant mode of prevention education in California intermediate and junior high schools, although health and safety issues and refusal skills are taught almost as frequently. Less than half of the students at this level learn about decisions and personal goals or about alternatives to drug and alcohol use.

Effects on 9th and 11th grade students: Students at the two higher grade levels were asked how their own behavior had been affected by prevention classes. These results are presented in Table 23.

TABLE 23

Self-Reports of Effects (%) of Drug/Alcohol Education
for Students in Grades 9 and 11

Effect	Grade 9	Grade 11
Avoid/reduce alcohol consumption	36.9%	36.5%
Avoid/reduce other drug use	29.0%	33.0%
Resist pressure from others to use/drink	32.1%	34.8%
Avoid harmful/dangerous forms of drug use	27.1%	33.8%
Avoid driving under influence	28.0%	41.2%
Know more about drugs/alcohol	37.9%	45.9%
Had no influence	7.7%	6.3%
Already decided not to use/drink	32.4%	31.2%

None of the possible positive effects listed in the first six rows of Table 23 were cited by half or more of the students in either grade 9 or 11. The most frequently cited was information or knowing more about drugs and alcohol (38% of 9th and 46% of 11th grade students). Still, 28% and 41% of students at grades 9 and 11, respectively, reported that they had learned to avoid or reduce alcohol consumption or other drug use, how to resist pressure from others to drink or use, how to avoid harmful or dangerous forms of drug use, and to avoid driving under the influence. In contrast, 8% of 9th and 6% of 11th grade students denied any impact for prevention education by endorsing the statement: "has not affected me (have not learned anything; has not been meaningful)."

Slightly less that one-third of the students at each grade level remained unaffected for a different reason--they had already decided on their own not to drink or use drugs. The existence of this group, accounting for 32% of the students at grade 9 and 31% at grade 11, suggests that there may be a "resistant" or "immunized" group of students, amounting to approximately 30% of the population, who do not use alcohol or other drugs and do not plan to do so.

Evidence for a resistant group: What additional evidence is there for the hypothesis that 30% of senior high school students in California may be significantly resistant to the use of alcohol or other drugs? It turns out

that several pieces of evidence already presented in this report are consistent with such a conclusion.

(1) Table 3 revealed that 69.2% of 11th grade students reported drinking beer in the previous six months. This was the most frequently used single substance. The converse of this observation is that 30.8% of 11th grade students abstained even from the most commonly used form of alcohol.

(2) Table 7 revealed that, when asked which substance accounted for their first high, 30.5% of the students in grade 11 reported that they had never been intoxicated or high from alcohol or other drugs.

(3) Table 9 presented results on the age of first alcohol intoxication for 11th grade only through age 16, the modal age for that grade level. If all 11th grade students are included, 34.2% responded that they had never been intoxicated from alcohol. This is a slightly higher estimate than those derived from (1) and (2), but still close to the hypothetical 30%.

(4) Table 20 showed that 29.6% of 11th grade students gave as a reason for not using alcohol or other drugs, "would disappoint yourself because you have chosen not to drink or use drugs."

(5) To repeat, Table 23 reported that 31.2% of 11th grade students had decided on their own not to use alcohol or other drugs. The range of the five separate estimates is 29.6% to 34.2%, a remarkably narrow range.

The question naturally arises as to just who the "resistant 30%" might be, assuming the different estimates refer to the same group of students. What are the factors which account for their remarkable steadfastness in the presence of a larger peer culture which is willing at the very least to experiment with alcohol and other drugs to the point where 70% have been high or intoxicated by the time they are 16 years old? Certainly the more precise identification and study of this particular group must have a high priority in later analyses.

Prevalence of five types of prevention: Table 24 provides 9th and 11th grade students' reports on the types of prevention education taken in school during the current and previous year plus estimates of the amount of time spent in each. As summarized above, the questions on which these results are

based include examples of each type of prevention. Estimates of time spent in each was on a 4-point scale of "a week or less," "2 weeks to a month," "2-3 months," and "about one semester or more."

TABLE 24

Percent of 9th and 11th Grade Students Taking Each of Five Types of Prevention Education and Mean Time of Exposure to Each

Emphasis	Grade 9	Grade 11
Information	51.1%	60.5%
M	11.98	12.56
s	1.03	1.16
N	1,273	1,660
Refusal Skills	43.9%	42.3%
M	11.74	12.21
s	0.99	1.21
N	1,125	1,162
Health and Safety	50.4%	65.0%
M	11.88	12.46
s	1.01	1.13
N	1,244	1,760
Decisions/Personal Goals	39.9%	44.6%
M	11.93	12.49
s	1.04	1.18
N	1,009	1,259
Alternatives	26.1%	23.8%
M	11.82	12.26
s	1.05	1.21
N	679	676

It is apparent from Table 24 that the two most frequently experienced types of prevention education at both grades 9 and 11 are information and health and safety, with from 50% to 65% of students in these two grade levels reporting each. Refusal skills came next, being reported by 44% of 9th and 42% of 11th grade students. Work on decision making was reported by 40% of 9th grade and 45% of 11th grade students. Last was alternatives, accounting for only about 25% of students at the two grade levels.

There was relatively little differentiation in the time spent in class by those who reported each type of prevention education, except between grade

levels. Ninth graders on average spent less than two weeks regardless of type of prevention. (The means (M) in Table 24 reflect codes assigned to responses in the categories listed above. Thus, "11" was assigned to the response "one week or less," "12" to "2 weeks to a month," and so on for the other two response alternatives.) Eleventh graders on average spent over two weeks, but probably less than one month.

There is no question from the data in Table 24 that more traditional, and possibly less controversial forms of prevention education are more commonly found in school curricula. Providing information and relating drug and alcohol use to health and safety issues fit more comfortably into the role that teachers ordinarily play in the instructional process. Teaching refusal skills requires a group process format incorporating role playing on the part of participants. Not all teachers are likely to be comfortable in this format, nor are all communities likely to find it compatible with the perceived functions of schools. Helping students to identify personal goals and values and to make decisions about their own lives may be seen by some as encroachment on the parental domain. It is therefore not surprising that these forms of prevention would be less commonly experienced by students. Yet, they are apparently to be found in at least some school curricula according to student reports.

Ratings of prevention education: Ninth and 11th grade students were asked to rate their agreement vs. disagreement to an assertion to the effect that the drug/alcohol education they had taken ". . . this year in school was highly worthwhile because the information presented was true, interesting, and useful." Response was on a 7-point scale of "strongly agree" to "strongly disagree."

TABLE 25

Evaluation by Grade 9 and 11 Students (%) of Drug/Alcohol Education Taken in School During Current or Previous Year

Response	Grade 9	Grade 11
Did not take	25.7%	21.6%
Positive	34.3%	41.2%
Neutral	17.1%	19.0%
Negative	2.6%	2.8%
No Response	20.4%	15.4%
Mean Rating	3.34	3.29

The results in Table 25 show that 26% of 9th and 22% of 11th grade students had not taken any prevention education during their current school year. Positive ratings were more frequent than neutral ratings, which, in turn, were more frequent than negative ratings. The mean ratings reported in the table fall between the responses "mainly agree" (3) and "agree somewhat" (4). Given the widespread use of alcohol and drugs in the population assessed, the fact that as many as 41% of 11th grade students were strongly positive about the prevention education they had taken during the school year is not a bad record under the circumstances. The picture for 9th grade is less encouraging with only 34% giving strong positive ratings.

DIFFERENCES BETWEEN GROUPS

Questions invariably are asked about differences between groups of respondents. While many such comparisons might be made, the following appear to be of special interest: (1) alcohol vs. marijuana use by students who "had" vs. "had not" taken each of the five types of prevention education in the previous year; (2) differences between the six California regions on alcohol, marijuana, cocaine and inhalant use; and (3) differences between ethnic groups on the use of the same substances.

Differences between types of prevention education: Students who "had" vs. "had not" taken each of the five types of prevention education in

the year preceding the survey were compared on average alcohol (sum of each student's frequency-of-use score on the three types of alcohol divided by 3) and on frequency of marijuana use. The *t* statistic was used. In this regard, a cautionary note is in order.

Standard procedures were used for estimating statistical error. Resource limitations prohibited the application of techniques appropriate to the estimation of error in complex samples. Had such methods been used, it is likely that the obtained values of *t* would have been smaller. The results below are thus suggestive rather than definitive. They should be examined for patterns consistent across grade levels or other groupings rather than for isolated differences between particular pairs of means.

Results for prevention education are summarized in Table 26 for students who "had" vs. "had not" taken each type of prevention.

TABLE 26

Comparisons of Mean Use of Alcohol and Marijuana by Students in Grades 9 and 11 Who "Had" vs. "Had Not" Taken Each of Five Types of Prevention Education*

Type of Prevention Education	Grade 9 N	Alc.	Mari.	Grade 11 N	Alc.	Mari.
Information	1273	X(-)		1660	X	X
Refusal Skills	1125			1162	X	X
Health/Safety	1244	X(-)		1760		X
Decisions	1009		X	1259	X	X
Alternatives	679			676	X	

*"X" indicates significant *t* at alpha equals .05. All significant differences reflected less alcohol or marijuana use by students who took each type of prevention education except for those keyed (-).

There is no meaningful pattern of differences at grade 9. Only three *t's* were significant out of a possible 10 comparisons, with two showing more alcohol use by students who had taken information and health and safety and one showing less marijuana use by students who had taken decision making.

In contrast, for grade 11 students, eight of the ten possible tests were significant (t's ranged from $t = 2.09$, $p = .04$, for alcohol use by students who took alternatives education to $t = 3.6$, $p < .01$, for alcohol use by students who had learned refusal skills). In all 10 of the comparisons, students who had taken each type of prevention education scored **lower** on both alcohol and marijuana use. Except for alcohol for health and safety education and marijuana for alternatives education, all of these differences were statistically significant. More important (given the qualification stated above), there was a consistent pattern across all of the comparisons.

What do these findings mean? Causal interpretations about prevention--for example, that prevention education was ineffective at grade 9, but consistently effective at grade 11--cannot be made since the students were not randomly assigned in advance to groups "taking" vs. "not taking" each type of prevention. An unknown selection factor might be operating at either grade which could account for the results. For example, if enrollment in prevention classes were voluntary at grade 11, then students who were **less** willing to use alcohol or other drugs might opt to take such courses. Without conducting appropriately designed research there is no way to determine whether or not this or other alternative explanations might account for the results. It can merely be said that the results for grade 11 are at least encouraging with respect to the possible effectiveness of various strategies of prevention.

Regional differences: As indicated above, the six regions were compared on average alcohol, marijuana, cocaine, and inhalant use for grades 9 and 11. Overall F tests at each grade level were significant for alcohol and marijuana use at both grade levels and for cocaine use at grade 11 only. Tukey HSD statistics were computed where overall F tests were significant. The HSD test compares all pairs of means, e.g., San Francisco region vs. Los Angeles region, Northern region vs. Los Angeles, etc., to identify which specific comparisons account for the significant overall F test. The results for total alcohol use are provided in Table 27.

TABLE 27

Differences Between Regions on Alcohol Use
by 9th and 11th Grade Students (Tukey HSD Test)

Alcohol, Grade 9: F = 6.09; df = 5, 2527; p < .0001

Region	Mean	N
San Francisco	2.13	461
Los Angeles	1.95	723
San Diego	2.01	326
Northern	2.31	317
Inland/Southern	2.14	355
Central	1.97	351
Tukey HSD at p = .05:	North > San Diego (.3) Central (.34) Los Angeles (.36)	

Alcohol, Grade 11: F = 11.24; df = 5, 2751; p < .0001

Region	Mean	N
San Francisco	2.32	379
Los Angeles	2.16	913
San Diego	2.46	377
Northern	2.7	293
Inland/Southern	2.4	408
Central	2.5	387
Tukey HSD at p = .05:	North > Inland/Southern (.3) San Francisco (.38) Los Angeles (.54)	
	Central > Los Angeles (.34)	
	San Diego > Los Angeles (.3)	

For grade 9, differences between the North and three other regions (San Diego, Central, and Los Angeles) were significant, in each case reflecting higher levels of alcohol use among 9th grade students in the Northern region. These were the only comparisons which attained statistical significance.

For grade 11, Northern students reported more consumption of alcohol than students in the Inland/Southern region as well as in the San Francisco region and Los Angeles. In addition, 11th grade students in both the Central region and in San Diego reported more drinking than did students in Los Angeles.

TABLE 28

Differences Between Regions on Marijuana Use
by 9th and 11th Grade Students (Tukey HSD Test)

Marijuana, Grade 9: $F = 8.25$; $df = 5, 2527$; $p < .0001$

Region	Mean	N
San Francisco	2.09	461
Los Angeles	1.71	723
San Diego	1.78	326
Northern	2.18	317
Inland/Southern	1.82	355
Central	1.60	351
Tukey HSD at $p = .05$:	North > Inland (.35) San Diego (.39) Los Angeles (.47) Central (.57)	
	San Francisco > Los Angeles (.38) Central (.48)	

Marijuana, Grade 11: $F = 4.77$; $df = 5, 2751$; $p < .0002$

Region	Mean	N
San Francisco	2.1	379
Los Angeles	2.0	913
San Diego	2.15	377
Northern	2.55	293
Inland/Southern	2.22	408
Central	2.26	387
Tukey HSD at $p = .05$:	North > San Diego (.4) San Francisco (.45) Los Angeles (.55)	

Turning to marijuana, Table 28 reveals that consumption was again higher in the Northern region. Ninth grade students there consumed more marijuana than 9th graders in the Inland/Southern, San Diego, Los Angeles, and Central regions. In addition, marijuana use by San Francisco 9th graders exceeded that for 9th graders in Los Angeles and the Central region.

For grade 11 the Northern region again exceeds other regions in marijuana use, in this case the three metropolitan regions: San Diego, San Francisco, and Los Angeles.

Although not shown in a table, the overall F for cocaine was significant only at grade 11 ($F = 2.172$; $df = 5, 2751$; $p = .019$). Only one comparison accounted for this significant overall F test. Eleventh grade students in San Diego used more cocaine than 11th grade students in Los Angeles.

What is to be made of these regional comparisons? First, it should be clear that alcohol and other drugs are used in all regions of the state. Second, it does appear that marijuana and alcohol use are higher in both grades 9 and 11 in the Northern region. This may be a surprising result, since there is a tendency to associate social problems with large cities rather than with rural areas. However, it is hardly a secret that marijuana is cultivated in certain Northern California counties despite vigorous efforts to eradicate it. As a result, this drug is probably more readily available and less expensive in some areas of Northern California than it is elsewhere--conditions which inevitably stimulate use. This does not explain higher alcohol use, although the frequent use of one drug may help create a climate which mediates the greater use of another.

Differences between ethnic groups: Students identified their ethnic group membership as Asian, Black, Latino/Mexican/Hispanic (hereinafter referred to as "Hispanic"), American Indian, White/Anglo, or "Other." The composition of the last group is unknown. Although it is likely to include substantial numbers of Filipinos and Pacific Islanders, individuals from other groups undoubtedly classified themselves in this category as well. Ethnic groups were also compared on average alcohol, marijuana, cocaine, and inhalant use.

TABLE 29

Differences Between Ethnic Groups on Alcohol Use by 9th and 11th Grade Students (Tukey HSD Test)

Alcohol, Grade 9: F = 28.37; df = 5, 2527, p < .0001

Group	Mean	N
Asian	1.48	218
Black	1.76	245
Hispanic	1.93	607
American Indian	2.26	75
White	2.28	1161
Other	2.18	207
Tukey HSD at p = .05:	White > Hispanic (.35)	
	Black (.52)	
	Asian (.8)	
	Amer. Indian > Black (.5)	
	Asian (.78)	
	Other > Black (.42)	
	Asian (.7)	

Alcohol, Grade 11: F = 64.37; df = 5, 2743; p < .0001

Group	Mean	N
Asian	1.67	290
Black	1.77	322
Hispanic	2.2	544
American Indian	2.87	65
White	2.69	1374
Other	2.41	154
Tukey HSD at p = .05:	American Indian > Hispanic (.67)	
	Black (1.1)	
	Asian (1.2)	
	White > Hispanic (.49)	
	Black (.92)	
	Asian (1.02)	
	Other > Black (.65)	
	Asian (.74)	
	Hispanic > Black (.43)	
	Asian (.53)	

Table 29 compares the groups for grades 9 and 11 on total alcohol use. White students in grade 9 used alcohol more frequently than Hispanic, Black

and Asian students. American Indian and "Other" students were not significantly different from Whites, but reported more frequent use of alcohol than Black and Asian students.

American Indian and White students in the 11th grade drank more frequently than Hispanic, Black, and Asian students, but did not differ significantly from one another. "Other" and Hispanic students drank more frequently than Black and Asian students.

The overall results for alcohol consumption are quite similar for the two grade levels. White and American Indian students generally exceeded Hispanic, Black, and Asian students. Black and Asian students did not differ enough to attain statistical significance (although the means for Blacks were higher at both grade levels) and reported significantly less frequent drinking than did the other groups in most comparisons.

Ethnic group comparisons on marijuana use are reported in Table 30. The results for 9th grade students are quite clear. Asian students drank significantly less than each of the other five groups which, in turn, did not differ from one another.

TABLE 30

Differences Between Ethnic Groups on Marijuana Use
by 9th and 11th Grade Students (Tukey HSD Test)

Marijuana, Grade 9: $F = 8.87$; $df = 5, 2507$; $p < .0001$

Group	Mean	N
Asian	1.25	218
Black	1.75	245
Hispanic	1.81	607
American Indian	1.96	75
White	1.97	1161
Other	2.0	207
Tukey HSD at p = .05:	Other > Asian (.75)	
	White > Asian (.72)	
	American Indian > Asian (.71)	
	Hispanic > Asian (.56)	
	Black > Asian (.5)	

Marijuana, Grade 11: $F = 29.83$; $df = 5, 2743$; $p < .0001$

Group	Mean	N
Asian	1.3	290
Black	1.73	322
Hispanic	2.09	544
American Indian	3.18	65
White	2.4	1374
Other	2.49	154
Tukey HSD at p = .05:	American Indian > White (.79)	
	Hispanic (1.1)	
	Black (1.46)	
	Asian (1.88)	
	Other > Black (.77)	
	Asian (1.19)	
	White > Hispanic (.31)	
	Black (.67)	
	Asian (1.1)	
	Hispanic > Black (.35)	
	Asian (.79)	
	Black > Asian (.43)	

At grade 11 there is a more complex pattern, but one which reveals fairly consistent hierarchy. American Indian students reported more frequent use of marijuana than each group with the exception of "Other." The latter

exceeded Black and Asian students. White students reported more marijuana use than Hispanic, Black, and Asian students. In turn, Hispanics used more marijuana than Blacks and Asians. Finally, Black students reported more use than Asian students.

TABLE 31

Differences Between Ethnic Groups on Cocaine Use by 9th and 11th Grade Students (Tukey HSD Test)

Cocaine, Grade 9: F = 2.24; df = 5, 2507; p = .0482		
Group	**Mean**	**N**
Asian	1.22	218
Black	1.12	245
Hispanic	1.22	607
American Indian	1.33	75
White	1.2	1161
Other	1.33	207
Tukey HSD at p = .05:	Other > Black (.21)	

Cocaine, Grade 11: F = 12.11; df = 5, 2743; p < .0001		
Group	**Mean**	**N**
Asian	1.27	290
Black	1.08	322
Hispanic	1.36	544
American Indian	1.74	65
White	1.48	1374
Other	1.58	154
Tukey HSD at p = .05:	American Indian > Asian (.47) Black (.66)	
	Other > Asian (.31) Black (.5)	
	White > Asian (.22) Black (.4)	

Ethnic comparisons for cocaine are presented in Table 31. At grade 9 the only significant difference was for "Other" greater than Black. At grade 11 American Indian, "Other," and White students did not differ significantly from one another, but all reported more use of cocaine than Asian or Black students.

Finally, the ethnic groups are compared on inhalant use in Table 32. There were no significant differences between any of the groups at grade 9. For grade 11, "Other" reported more use of inhalants than Asian or Black students. Hispanics and Whites did not differ from one another, but both exceeded Blacks.

TABLE 32

Differences Between Ethnic Groups on Inhalant Use
by 11th Grade Students (Tukey HSD Test)

Inhalants, Grade 11: $F = 5.8$; $df = 5, 2743$; $p < .0001$

Group	Mean	N
Asian	1.16	290
Black	1.07	322
Hispanic	1.26	544
American Indian	1.28	65
White	1.21	1374
Other	1.35	154
Tukey HSD at p = .05:	Other > Asian (.18) Black (.28)	
	Hispanic > Black (.18)	
	White > Black (.14)	

Taken as a whole, the ethnic comparisons reveal a rough ordering of the groups irrespective of substance which has American Indian and White students usually reporting higher levels of use, followed by "Other," Hispanic, Black, and Asian students.

This rough ordering suggests that the causes underlying differences between ethnic groups are quite complex. For example, being disadvantaged in the economic and social sense is sometimes held to be the primary cause of alcohol and drug abuse. How, then, can the paradox be explained that the two groups at the top of the list are the most advantaged group (Whites) and what may be the most severely disadvantaged group (American Indians)? This is not to suggest that social and economic factors are irrelevant, only that other factors must be taken into account as well. Among these are economic affluence as a factor which enables alcohol and drug use for some, family values and controls, and cultural norms and models. In particular, the influences which underlie the relatively lower use of alcohol and drugs by California's Asian students should be identified.

COUNTIES BY REGION

Region I - San Francisco

Counties:
- Alameda
- Contra Costa
- Marin
- San Francisco
- San Mateo
- Santa Clara

Region II - Los Angeles County

Region III - San Diego County

Region IV - Northern

Counties:
- Alpine
- Butte
- Colusa
- Del Norte
- El Dorado
- Glenn
- Humboldt
- Lake
- Lassen
- Mendocino
- Modoc
- Napa
- Nevada
- Placer
- Plumas
- Sacramento
- Shasta
- Sierra
- Siskiyou
- Solano
- Sonoma
- Sutter
- Tehama
- Trinity
- Yolo
- Yuba

Region V - Inland/Southern

Counties:
- Imperial
- Orange
- Riverside
- San Bernardino

Region VI - Central

Counties:
- Amador
- Calaveras
- Fresno
- Inyo
- Kern
- Kings
- Madera
- Mariposa
- Merced
- Mono
- Monterey
- San Benito
- San Joaquin
- San Luis Obispo
- Santa Barbara
- Santa Cruz
- Stanislaus
- Tulare
- Tuolumne
- Ventura

JOHN K. VAN DE KAMP
Attorney General

State of California
DEPARTMENT OF JUSTICE

Post Office Box 944255
Sacramento 94244-2550

1515 K STREET, SUITE 511
SACRAMENTO 95814
(916) 445-9555

November 26, 1985

NAME OF PRINCIPAL
NAME OF SCHOOL
STREET ADDRESS
CITY, STATE ZIP CODE

Dear Mr./Ms. _____:

As you are probably aware, your school has been selected to participate in a statewide survey of alcohol and drug use among students in grades 7, 9, and 11. The survey is sponsored by Attorney General John K. Van de Kamp. The goal of the survey is to provide the first systematic statewide assessment of the actual level of student substance use and the students' related attitudes and experiences toward drugs and alcohol. The survey results will provide a baseline against which future prevention and intervention programs in California can be evaluated.

This survey is being conducted because drug and alcohol use and abuse by adolescents and adults remains a major problem for our society. Because we lack California data we are forced to depend on speculation as to the true magnitude of the problem. Without accurate information we cannot galvanize public opinion to support prevention and intervention efforts on the scale needed; we cannot determine whether the extent and type of use is changing; we cannot allocate resources intelligently; and we cannot evaluate the effects of our attempts to combat the problem.

The survey results for individual schools will not be released in any form. The survey report will deal only with results for the state as a whole and for large groupings of schools, e.g., urban vs. suburban, high vs. low socio-economic status, etc. Local results will thus be kept absolutely confidential.

Anonymity for students is also guaranteed. They will not be asked to identify themselves when completing the questionnaire. Moreover, the administrative procedures in the enclosed guidelines also assure privacy and anonymity.

Most of the schools that participated in earlier surveys at the district and county levels sent letters explaining the survey to parents of students selected for the survey. A sample letter is also enclosed. If you decide to use the letter, please feel free to modify the text in any way you deem appropriate.

The surveys are being mailed to you under separate cover. We would like you to administer the survey before breaking for Christmas vacation. If you have any questions or need additional information, please call Jane Doe at (///) ///-////.

Your willingness to assist in this effort represents a significant service to the state and community.

Very truly yours,

RODNEY SKAGER
Special Consultant

RS:ims

Enclosures

GUIDELINES FOR ADMINISTERING
THE
CALIFORNIA SUBSTANCE USE SURVEY

Earlier versions of this survey have been taken by over 15,000 California students in over 100 secondary schools. Reports from testing supervisors at local schools have repeatedly confirmed that students complete the questionnaire rapidly (20 to 30 minutes) and in a serious manner under the conditions described below.

ADMINISTRATION DATES

We would like you to administer the survey before the Christmas vacation.

DRAWING THE LOCAL SAMPLE

The survey is being administered at grades 7, 9, and 11 in middle, junior and senior high schools. The statewide sampling consists of approximately 8,000 students, including those from your school.

The number of students to be assessed at your school is approximate and allows for a small discrepancy of 10 percent or less between the number assessed and the number specified. This will be corrected when we compile the statewide results and weight each school on the basis of its enrollment.

Your student sampling must be randomly drawn and should only include English-speaking students at each grade level. To achieve a random sampling, you should follow these procedures:

(1) Divide the total enrollment of English-speaking students at each grade level by the number to be assessed at that grade level. Round the resulting number off to the nearest integer.

EXAMPLE:

A school for which a sample of 67 is specified at grade 11 has a total enrollment of 447 English-speaking students at that grade level; 67 divided into 447 equals 6.67; 6.67 rounds off to an integer of 7.

(2) Count off every Nth student on the class roster to be part of the sampling. N equals the integer as computed using the formula from step 1.

EXAMPLE CONTINUED:

This means that every seventh non-LES/NES student will be drawn from the roster for the sample; that is, the seventh name, the fourteenth name, etc.

Please use the procedure just described rather than randomly selecting intact classrooms. Students are rarely assigned randomly to classrooms. Samples which result, especially where the total number of cases per school is quite small (as is the case for this survey), are usually biased in some way.

NOTIFYING STUDENTS AND PARENTS

Both students and parents should be provided with information explaining the purpose of the survey and stressing the anonymity of participants. A sample letter addressed to parents is enclosed. Similar letters have been used in previous surveys conducted at the district or county level.

ADMINISTERING THE SURVEY

1. The Setting

Previous experience plus the sampling method described strongly suggest that the assessment be conducted outside of the regular classroom. Rooms large enough to allow for assessment of the entire sample for each grade level are appropriate as long as they are not crowded.

2. Instructions for Students

Students should be assured by appropriate authority that the survey is important. This is ordinarily done by the principal at the beginning of the assessment. The following points should be covered by principals or their designees:

a. The students have been selected randomly. No one will ever be able to connect any student with his or her responses. Anyone who does not wish to participate, or who does not want to answer the questionnaire in a serious manner, should leave the room and return to his or her regular classroom. This will in no way be held against the student.

b. Students should be urged to respond honestly and accurately. Results of the survey will receive considerable attention in the media, and school and governmental alcohol and drug programs are likely to be influenced by the results. The cooperation of each individual is important.

c. Drug and alcohol abuse by young people is of grave concern to both school and community. Research has shown that in most schools students themselves rate drug and alohol use as one of the major "problem areas" in their schools.

d. Completed questionnaires should be dropped by each student into a designated box when finished.

3. Distribution of the Questionnaires

There are two versions of the questionnaire - one for 7th grade and one for the 9th and 11th grades.

4. Staff Supervison of Survey Administration

It is vital that students feel confident that their responses will not be observed by other students or proctors; that is, staff members may be present but they should remain an appropriate distance from the students completing the survey.

5. Collection of the Completed Questionnaires

An effective (and obviously anonymous) means for collecting the completed questionnaires is to put a large box near the entrance to the assessment room. Students should be asked to drop their completed questionnaires into the box when finished. Not having to pass the questionnaire to anyone else assures anonymity.

RETURNING THE COMPLETED QUESTIONNAIRES

Please use the mailing labels enclosed with the surveys to return the questionnaires before you leave for Christmas vacation. It would be appreciated if those schools where more than one grade is to be assessed would batch the questionnaires by grade level.

ADDITIONAL INFORMATION

If you have questions or need additional information, please call Jane Doe at (///) ///-////.

Your assistance in this important effort is greatly appreciated.

SAMPLE LETTER TO PARENTS

December 2, 1985

Dear Parents:

Our school has been selected to participate in a statewide survey to assess drug and alcohol use among students in grades 7, 9 and 11. The survey is being administered throughout the state to over 8,000 students in 93 schools. Your son/daughter has been selected at random to participate in the survey.

The survey is sponsored by Attorney General John K. Van de Kamp and supports his effort to increase the effectiveness of drug and alcohol abuse prevention and law enforcement programs.

These are facts about the survey:

1) It is ***anonymous***. Participating students will not put their names or any other identifying information on the questionnaire. No one will be able to connect any individual student with his or her responses.

2) Participation in the survey is ***voluntary***. Your son/daughter may decline to participate without having to give a reason.

3) Results of the statewide survey will be publicized in the same manner as public opinion polls.

The survey results will provide a baseline against which future prevention and intervention programs in California can be evaluated.

We know that you support efforts to combat the problem of drug and alcohol use by our youth and hope you will agree that this survey represents a vital element in that struggle.

Sincerely,

Principal

1515 K Street, Suite 600
P. O. Box 944255
Sacramento, California 94244-2550
(916) 324-5437

3580 Wilshire Boulevard, Suite 800
Los Angeles, California 90010
(213) 736-2273

State of California

Office of the Attorney General

John K. Van de Kamp
Attorney General

November 1, 1985

NAME OF SUPERINTENDENT
NAME OF SCHOOL DISTRICT
STREET ADDRESS
CITY, STATE ZIP CODE

Dear Superintendent _____:

I am writing to enlist your personal support and your district's participation in my efforts to make the prevention of juvenile drug and alcohol abuse a top priority of the State of California. I am especially interested in your support for our upcoming statewide school survey on drug and alcohol abuse involving students within your district.

My long-time personal concern about drug abuse and its effects on the quality of life was accentuated during my experience as Los Angeles County District Attorney in prosecuting drug cases, and has evolved into a major effort to reduce the supply of illicit drugs in California. As Attorney General, I have tried to carry out this commitment through my Campaign Against Marijuana Planting (CAMP) and my drug enforcement programs in the Bureau of Narcotics aimed at major traffickers. However, I am frustrated by the continued abuse of drugs by our young people despite law enforcement's efforts to reduce the supply.

This year, I intend to expand our approach to the drug problem by addressing the *demand side* of the equation.

As a first step, it is essential to have California-specific data on drug and alcohol abuse. The effective development of a substance abuse prevention strategy is dependent upon an accurate benchmark assessment of California's drug and alcohol abuse problems, especially among young people.

For these reasons, and also to provide public policymakers with necessary data, my department has contracted with Dr. Rodney Skager, Associate Dean, UCLA Graduate School of Education, to conduct a statewide survey of the use of psychoactive substances by high school and junior high or middle school students in California schools. The survey assesses (a) the frequency and

type of substance use, (b) age at first use and intoxication, (c) attitudes of students, and (d) experience with and evaluation of school-based prevention programs. Similar survey instruments were developed by Dr. Skager and successfully used in Orange County and Ventura County schools.

Dr. Skager and his colleagues at UCLA's Center for the Study of Evaluation have carefully selected a representative sampling of California schools to participate in this important survey. ABC High School and XYZ Junior High School from your district are included in this statewide sampling. The success of the survey will depend upon the cooperation and participation of the schools.

The survey data will be analyzed on a statewide and regional basis with individual school and district survey data remaining strictly confidential. The data will provide important information on the effectiveness of our current approaches and the extent of the problem.

Roger Carrick, my Special Assistant Attorney General for Policy, is directing our role in the survey effort and will contact you within the next few days to discuss your participation in the survey in more detail.

I need your help in this endeavor. Please join us in our statewide war against drug and alcohol abuse.

Sincerely,

JOHN K. VAN DE KAMP
Attorney General

ims

NOTE ON THE WEIGHTING PROCEDURE

The mathematics of the weighting system were designed by Professor Leigh Burstein of the Graduate School of Education at the University of California, Los Angeles. The computer program was designed by Dr. Dennis G. Fisher of the Department of Psychology at the University of California, Los Angeles. The description that follows will intersperse the description of the mathematics with the description of the computer program. The program was written in SAS Basic Product Version 5.08 for the OS/MVS system on the IBM 3090 in the Wylbur Environment.

1. For each school calculate the probability of students being sampled (using twelfth grade enrollment as possible sample size.

$$P_{ij} = n_{ij}/N_{ij}$$

where n_{ij} is the number of students in the sample for school j, and where N_{ij} is the twelfth grade enrollment.

There are two raw data sets that were used in this problem. One had the OS name of ege8daf.rod and consisted of 884 observations each containing 13 variables. Each observation was data about one school in the State of California. This data set was blocked at size 6100 and had a logical record length of 100. The other raw data set had the OS name of ege8daf.senior and contained 5018 observations each of which represented data from one high school student in a California High school. This data set was blocked at size 99 at this time and had a logical record length of 99.

The first step was to sort the data by a common variable so that these two data sets could be merged but there was no common variable. The identification number used for rod was the DCS code from the California State Department of Education, whereas the identification number for senior was a composite code taking several variables into account simultaneously. The DCS code was manually located and entered so as to transform the senior identification numbers into DCS codes. This enabled us to sort both data sets by a common variable which in turn enabled us to merge these two data sets. All students who were not in the eleventh grade were deleted from the merged data set.

PROC SUMMARY was used to find the number of students who answered each question in each school. These variables along with the twelfth grade enrollment of each school was output to another data set. The number of students who answered each question in each school was divided by the

twelfth grade enrollment of each school using array processing and do loops. This created the variables of P_{ij} for each variable for each school.

2. Invert the probability $1/P_{ij} = N_{ij}/n_{ij} = w_{ij}$

where w_{ij} is the weight for a student in the school.

In order to do this the set of P_{ij} variables for each school was used in multiple array processing so that a new variable was created for each variable for each school. This new variable (termed inv on the printout) is the variable w_{ij}.

3. Let x_{ijk} = response of a student in school ij to a question (e.g. use marijuana?).

4. Calculate the weighted average on x_{ijk} for cell i.

$$\bar{x}_i = \frac{\sum \sum w_{ij}\, x_{ijk}}{\sum \sum w_{ij}}$$

This is the weighted average from cell i that (in the absence of attrition) estimates the cell average for the population of students and schools in the cell (assumes all school in the cell had equal probabilities of being sampled).

At this point in the program some checking procedures were undertaken to make sure that the process had resulted in correct values for the variables produced so far. Also two permanent SAS data sets were created so that the raw data would not have to be read in on every program run. The raw data sets were reblocked so as to be stored on fewer tracks. The merge step was changed so that schools that were not sampled from were deleted from the data set. Several duplicate DCS codes were recoded to unique identifiers. A new data set was created by merging several previous data sets including the permanent SAS data sets. By using four arrays and three do loops, the new variable array XI was created. The XI array was input to a PROC SUMMARY using the four variables that had been used to originally create the sampling cell (region, size, ses, biling). This summed XI over cells and the resultant XI's for each question for each cell were output to a new data set named Four. This data set contained the numerators of step four. Four was set into a data set named Avg and two arrays were defined that consisted of summary variables from the PROC SUMMARY contained in Four. A third array was defined called Celav that would hold the actual weighted cell averages. This was accomplished by using all three arrays in a single do loop.

5. For all schools in each cell find the sum of the twelfth grade enrollment. This is the population of students in the cell.

$$N_i = \sum N_{ij}$$

The data set SAS.Skager was input to a PROC SUMMARY using the sampling cell variables as class variables and the grade 12 enrollment was summarized and output by cell to an output data set named five.

6. Sum over all cells from which a sampled school was drawn.

$N_s' = \sum_{i \epsilon S_i} N_i$ where S_i is the set of cells from which a school was drawn.

$N_n' = \sum_{i \epsilon S_n} N_i$ where S_n is the set of cells from which a school was not drawn.

$N_n' + N_s' = N$ where N is the total 12th grade enrollment in the state of California.

In order to arrive at these values it was necessary to create a new variable using fsedit. This new variable, named sample, had a value of 1 for a cell that was sampled and a value of 0 if a cell had not had at least one school sampled from it. Sample was used as the class variable in a PROC SUMMARY and sums of the twelfth grade enrollment were obtained and added to the SAS Library.

7. Let $w_i = N_i/N'_s$ the weight for cell i (the proportion of students in the population that were in schools in cell i) using only those cells with sampled students.

At this point N'_s is a constant, specifically equal to 237,242. This was determined by merging a data set that was output from a PROC SUMMARY named five and the output from another PROC SUMMARY named four which was set into a data set named avg and was subject to triple array do loop processing. It was necessary to use a variable tetrad for merging.

8. Then $\bar{X} = \sum w_i \bar{x}_i$ where X is the state wide average based only on cells with sampled schools and x_i is the weighted average of cell i.

This was accomplished by setting the previously merged data set into another data set called temp. Temp included the creation of a variable array called state which came from do loop processing in which state was set equal to the

weighted cell average multiplied by the quantity of the twelfth grade population of the cell divided by 237,242. This state variable array was input to a PROC SUMMARY and the sums across cells of the state array were printed out thus printing the statewide weighted average of each of the variables.

TABLE IV-1

Comparison by Grade Level of Weighted vs. Unweighted Means for Substances

Substance	Grade 7		Grade 9		Grade 11	
	un/wtd	wtd	un/wtd	wtd	un/wtd	wtd
Beer	1.68	1.66	2.34	2.34	2.74	2.76
Wine	1.61	1.61	1.99	2.01	2.21	2.28
Liquor	1.34	1.31	1.87	1.90	2.15	2.19
Marijuana	1.21	1.17	1.85	1.82	2.17	2.16
Hashish	1.04	1.03	1.20	1.20	1.28	1.26
Amphetamines	1.05	1.04	1.18	1.19	1.32	1.31
Cocaine	1.07	1.05	1.21	1.20	1.40	1.38
LSD	1.03	1.02	1.07	1.07	1.12	1.12
Mushrooms	1.07	1.06	1.10	1.10	1.15	1.15
Other Psychedelics	1.02	1.02	1.03	1.03	1.05	1.04
Barbiturates	1.02	1.02	1.06	1.06	1.08	1.07
Sedatives	1.02	1.02	1.06	1.06	1.10	1.09
Tranquilizers	1.04	1.04	1.10	1.10	1.13	1.12
Inhalants	1.25	1.26	1.27	1.26	1.21	1.21
PCP	1.03	1.02	1.05	1.05	1.06	1.05
Heroin	1.02	1.02	1.02	1.02	1.02	1.02
Other Narcotics	1.04	1.03	1.11	1.09	1.14	1.16

ESTIMATING CONFIDENCE INTERVALS AND SIGNIFICANCE OF DIFFERENCES

Throughout the report, we have presented various percentages (e.g., the percent of 7th graders who report smoking marijuana daily) and in some cases, have discussed differences between percentages (e.g., comparison of the percent using marijuana daily in the 7th and 9th grades or the percent of 9th graders using marijuana ever with the percent using inhalants). The percentages reported are "estimates" of the true values for the population of interest and as such would vary if the study were repeated. Standard procedures derived from sampling theory are available for estimating how stable various estimates (either of percentages or differences between percentages) are. These procedures allow one to establish confidence intervals around a sample estimate that will likely contain the true population value or to establish whether the observed difference between two percentages is statistically significant (unlikely to occur by chance).

With complex sampling designs of the type employed here (essentially randomly sampling of students within schools which were first stratified by region and other school-level demographic characteristics), three factors affect the size of the sampling errors, and hence the confidence intervals and significance levels: the number of cases upon which a percentage is based, the size of the percentage, and the combined influence of the degree of deviation of the sample design from simple random sampling and the tendency of clustering of students with similar attributes in the same school (this latter factor is typically labeled the "design effect"). Other things being equal, (a) larger samples yield smaller sampling errors; (b) high or low percentages have lower sampling errors than percentages near .50; and (c) variables which exhibit less clustering within schools (i.e., those for which the probability of a given response is similar across schools vs. those where the probability fluctuates systematically across schools) have smaller sampling errors.

While the first two factors (number of cases, size of percentage) are easily determined, in complex sample designs the design effects are often difficult to determine (i.e., their estimation is less straightforward given several potentially complicated and costly procedures for estimating the

necessary sampling variances). As a consequence, some sampling experts recommend that a conservative adjustment factor be uniformly applied to take into account design effects. In practice the width of confidence intervals or the sizes of significant differences derived from simple random sampling with known sample size and percentage (or difference in percentage) is multiplied by the chosen adjustment factor (determined by the design effect).

Those who wish to apply this procedure are referred to Tables A-1 and A-2 of Johnston, Bachman, and O'Malley (1984).* These tables contain the Confidence Intervals (95%) around Percentage Values and the Values for Significant Differences Between Two Percentages (95% significance level), respectively. It is further advised that the values in the tables be multiplied by a conservative adjustment factor of 2.0. The resulting values are undoubtedly overly conservative for those attributes that are not systematically influenced by or associated with the schools.

---

*Johnston, L. D., Bachman, J. G., and O'Malley, P., *Monitoring the Future - 1983*. Ann Arbor, MI: Survey Research Center, Institute for Social Research, University of Michigan, 1984.