UNIVERSITY OF CALIFORNIA

SANTA CRUZ

AN EXAMINATION OF FACTORS WHICH CONTRIBUTE TO ADOLESCENT TOBACCO USE

A Dissertation Submitted in partial satisfaction of the requirements for the degree of

DOCTOR OF PHILOSOPHY

in

PSYCHOLOGY

by

Thomas Adam Burke

June 1984

The dissertation of Thomas Adam Burke is approved:

M. Brewster Smith

Marjorie S. Horton

Ronald W. Henderson

Dean of Graduate Division

ACKNOWLEDGEMENTS

I would like to thank the many people who contributed to this endeavor. M. Brewster Smith, my advisor and dissertation committee chairperson, gave extremely helpful feedback on my dissertion, and has served as a model of academic integrity for me. In addition, my other committee members, Marjorie Horton and Ronald Henderson, offered invaluable advice on this study that was much appreciated. Sharon Jenkins and Carol Omelich generously consulted on statistical and general theoretical issues. Nathan Maccoby and Cheryl Perry provided many ideas and much encouragement during the early stages of this work.

I would also like to thank those involved in the actual operations of this project. Many students generously offered assistance with data collection and coding of surveys. The American Lung Association staff and board of directors provided financial and much appreciated moral support. In addition, several Lung Association personnel deserve special mention. Janet Stecker's dependable assistance made field work out of the county much easier. Liz Miller, current director of the local Lung Association, was a constant supporter of this project to the board of directors, and to the greater Lung Association offices. Her assistance and friendship were very much appreciated. Finally, many thanks to Dorothy Prince, former director of

the Lung Association, whose support and encouragement were critical in the inception, development, and completion of this project. To her many thanks are due.

Finally, I would like to acknowledge several special teachers, personal friends, and my family. I am deeply grateful to Sister Mary Thaddeus, Dr. Jack Griffin, Dr. Lewis Zerby, Ruth Richards, and Baba Hari Dass for what they have taught me. These are people who epitomize that rare type of teacher who not only cares about students' academic development, but about their personal growth and happiness as well. Also, many thanks go to Barbara Curbow, Susan Osaki, Valerie Simmons, Nayana Feinman, Omanand Dass, and Tripura Wilson for their sincere friendship and support. Finally, for my family, deep gratitude goes to my parents who have encouraged higher education, and who have always been ready and willing to help in whatever way they could. Many thanks go to my sister for her unfaltering support and wisdom, for her encouragement, but most of all for her friendship; and to my nephew who is the epitomy of what youth can do in our society given love, good models, and the proper environment.

To all of those mentioned, and to the many others who helped in one way or another, consciously or not, I am deeply indebted.

TABLE OF CONTENTS

The aim of this study is to increase understanding of the factors related to cigarette smoking among youth. Much work has already been done on the use of various substances (cigarettes, alcohol, marijuana, and harder drugs) by adolscents. Most of this research has focused on the influence of peers, parental modeling (and to some extent parenting styles), and on personality characteristics. As a background for the present study an overview of adolescent cigarette use and a more general review of the substance use literature is first presented. Although this study focuses on cigarette use, the principal findings about the use of all licit and illicit substances will be reviewed, since the similarities and differences between user characterisitics associated with different substances can be useful in indicating which qualities are unique to cigarette smoking, if such differences do indeed exist.

After the literature review three specific sets of relationships (Questions I-III) on which we later focus are discussed. Question I examines the relationship between parenting style, personality, and the tendency to affiliate with substance using peers. Question II considers parenting styles, self-esteem, and several achievement/social orientation variables. Question III looks at the relationship between three personality variables, group substance use norms, and persuadability. The nature of the relationships is presented first followed by a theoretical rationale for

the specific choice and order of variables. Although a causal order is implied, the specific order of cause and effect cannot be tested since the data base is cross-sectional. Rather the relationships are examined to find possible causal links that can be tested later. The current study is the first segment of a three wave longitudinal study that will eventually allow the questions preliminarily assessed here to be analyzed for their causal nature. Now let us consider youth smoking.

Adolescent Cigarette Use

Adolescent cigarette smoking continues to persist in our society much like its adult counterpart. There are differing opinions as to the actual prevalence, but no question as to its existence. A national survey of high school seniors (Johnston, Bachman, & O'Malley, 1981) found 14 percent of high school seniors smoked half a pack of cigarettes or more per day, and 71 percent of the students had tried cigarettes. A survey conducted by the National Institute of Education (NIE, 1979) reported that on the average smoking prevalence stayed about the same for 12 to 18 year old boys (16%) during the period from 1968 to 1974, but that it decreased during the period from 1974 to 1979 to 11%. The situation was different for girls, however. In 1968, for example, twice as many boys smoked as girls (15% to 8%), but by 1979 there were more girls smoking than boys (13% to 11% respectively). It should be noted, however, that this 13

percent rate in 1979 for girls is a slight drop in prevalence from the 1974 sample in which 15 percent of female teenagers smoked cigarettes.

Although the leveling and decreasing trends are encouraging there is still much work to be done in terms of understanding both the etiology of cigarette use and the prevention and cessation of the behavior. There are several reasons for concern. The most obvious and well documented of these is the deleterious effect of cigarette smoking to health (ACS, 1980; USDHEW, 1979). The dramatic increase in the incidence of illness and premature mortality makes cigarettes one of the industrialized world's major public health menaces. To put this in perspective it may be helpful to consider the fact that in 1977 there were 50,000 deaths in the U.S. caused by automobile accidents; in the same year, however, there were 300,000 premature deaths attributable to cigarette smoking (Jarvik, Cullen, Gritz, Vogt, & West, 1977). Cigarette smoking has thus rightly been called the major preventable cause of premature illness and death in our country (USDHEW, 1979).

Another potential, although debated, concern is related to the increased incidence of later drug use by young people who smoke. Kandel, Trieman, Faust, and Single (1976) report on longitudinal work on substance abuse in which they found cigarette use to be a transition substance in the progression from licit to illicit drug use. The basic progression

presented suggests that parents serve as models of legal substance use (alcohol and cigarettes). This modelling encourages the youth to try the substances himself; the young person then becomes involved in the youth culture which Kandel says is partly characterized by the use of drugs; due to the social pressures within the peer group the young person begins to experiment with marijuana and is socialized into its use; if certain factors prevail (intrapersonal more than peer influences or personal values and attitudes), the young person may later become involved with more serious illicit drugs. Kandel's work revealed that adolescents who did not use cigarettes or alcohol were significantly less likely to become users of illicit drugs later. Others (Blum & Associates, 1969; Johnson, 1973) have also found cigarette smoking to be predictive of other drug use. Similarly, Johnson (1973) found that marijuana smoking usually precedes use of other drugs.

Perhaps familiarity and positive experience with a specific substance (for example, cigarettes which are legal, accessible, and available in abundance) leads to perceived utility of drugs in general, and thus to more usage. Probably more important, however, are the social groups in which the youth becomes involved as the result of certain behavioral choices. Jessor (1976) found that students who began to use marijuana associated with students who already used marijuana and became more like them in their behavior,

values, and attitudes over time, compared with those who continued to abstain. So the seemingly inocuous substance tobacco, which has been deemed a socially acceptable substance in our own historical period, may actually be the first step on the path to other substances prohibited by the greater society.

This suggestion of a stepping stone progression starting with cigarettes and leading to more serious drugs has been questioned by others, however. Dull and Williams (1981), for example, provide evidence that the relationship between the use of licit and illicit substances by youth is due to simultaneous experimentation rather than a causal progression from one to the other. Jessor (1979) similarly argues against the notion that marijuana use leads to more serious drug use for several reasons: (1) there is a much larger proportion who have tried marijuana compared to more serious substances, and (2) there has been an increase in the use of marijuana among youth without a comparable increase in other illicit subsances. Although the same specific argument cannot necessarily be made for cigarettes as being precursive to other substances it is possible that the apparent relationship of cigarettes to other substances is a spurious one, with some other variables being significantly responsible for causing both, such as being rebellious or having parents who use substances.

A final consideration of major import has to do with the difficulty of changing the behavior of smoking once it has been established. It has been found that there is a rather dramatic increase in smoking between seventh and twelfth grades (Johnston, Bachman, & O'Malley, 1980; USDHEW, 1979), the greatest increases occuring between 8th and 10th grades (Fodor & Glass, 1971). During this period of personal uncertainty, exploration, and curiosity a youngster might experiment with cigarettes. Unfortunately this apparently harmless action can have negative long-term consequences, as Leventhal and Cleary (1980) report that 85%-90% of those who smoke as few as four cigarettes become regular smokers. Research has shown that older students who smoke are fairly committed to their habit (Laoye, Creswell, & Stone, 1972) and that 80% of teenagers who were regular smokers in high school continued to smoke as adults (Rogers, 1981).

These last findings are predictable as cigarette use appears to be much easier to start than to stop. For example, although 30 million adults have successfully quit smoking since the first Surgeon General's report on the negative health consequences of smoking in 1964 (USDHEW, 1964), there are still 50 million adults who do smoke (ACS, 1980). Successful long-term cessation, however, is not always easy as has been shown in reviews of cessation intervention studies (Bernstein, 1969; Bernstein & McAlister, 1976; Leventhal &

Cleary, 1980)

Because of the high probability that adolescents will experiment with tobacco, the apparent ease with which a regular habit can develop, and the difficulty in quitting once a person has become a regular smoker, several authors have suggested that the intervention emphasis should be placed on smoking prevention programs prior to 8th grade before many students begin to experiment with and become addicted to cigarettes (Fodor et al., 1971; Irwin, Creswell, & Stauffer, 1970; Laoye, et al., 1972).

Prevention Efforts

Many efforts have been made to prevent cigarette use among young people. Many of these programs have shown little or no results, or were not evaluated properly to assess if any impact had occurred (Leventhal & Cleary, 1980; McRae & Nelson, 1971; Rabinowitz & Zimmerli, 1974; Thompson, 1978). Thompson (1978) reviewed the literature on smoking prevention in adolescence and found few positive behavioral results from the interventions. Most of the programs took an information/education orientation and focused on the short-term and long-term health consequences of smoking cigarettes. The belief apparently was that if adolescents received information regarding the rather serious potential health consequences of cigarette smoking, they would make a rational decision not to smoke. Communications research, however, has shown that the mere transmission of information

is not necessarily adequate for changing attitudes (Hyman & Sheatsley, 1971).

The lack of success of these programs indicates that either the rational view of humanity implicit in information/education models is erroneous, or that if adolescents are indeed rational, then the most salient information is not being conveyed. In support of the latter hypothesis, one study found that although the typical junior high student is well aware of the negative health costs of smoking cigarettes (and this has been corroborated in other large surveys, e.g., NIE, 1979; Johnston et al., 1980) the weight of prevailing complex social factors often overrides the strength of reason (Evans, Rozelle, Mittlemark, Hansen, Bane, & Havis, 1978).

In actuality the decision to smoke might be the most reasonable one under the circumstances. Coleman (1961) has found that an important source of self-acceptance in the adolescent society is one's number of friends; the more friends, the more self-acceptance. Laoye et al. (1972) have suggested that cigarette use can provide opportunities for group participation and psychological security, and thus concomitantly increases the adolescent's self-acceptance. If this is indeed true adolescent smoking may follow from rather sound reasoning; adolescents choose the highly valued and proximal options of friendship and greater self-acceptance instead of the distal and uncertain long-term

health consequences which are thus less salient to the average teenager. Not suprisingly, we find that recent smoking prevention programs which have begun to employ sophisticated social variables (e.g., Botvin, Eng, & Williams, 1979; Evans et al., 1979; McAlister, Perry, & Maccoby, 1979a) are achieving greater success than earlier information/education approaches, which focused on the health consequences of cigarette use. These programs targeted the critical social factors potentially related to use, particularly peer use and social support for the behavior itself.

Specific Contributing Factors

Despite the success of these more recent efforts, the reasons for success are not always clear, due to the diversity of methods used in the interventions. Moreover, the effects are often small, and the long-term persistence of the effects is unknown. Therefore, although these studies have increased our understanding there is still much we need to know.

Leventhal and Cleary (1980) have stated that most of the intervantion programs in smoking prevention and cessation can be categorized as derived from communication theory or social learning theory. They contend that these models of behavior and behavior change do not adequately address the problem of cause and maintenance of actual smoking behavior. What is needed is more theoretically based, developmentally oriented research to determine the critical

elements in the initiation, maintenance, and cessation of cigarette smoking.

Peers

There is little doubt that peer influences play a major contributory role in the initiation and maintenance of use of cigarettes and other substance by adolescents. A national survey (NIE, 1979) found that 90 percent of smoking teens reported at least one of their four best friends smoked. The majority of non-smoking teens, however, reported having no friends who used cigarettes. McAlister et al. (1979a) reported smoking by one's 'best friend' to be the best predictor of current use. Experimental smoking usually occurs with peers, while changes in smoking status in adolescents are related to changes in peer groups (Perry, 1982). Chassin, Presson, Bensenberg, Olshavsky, and Sherman (1981) found the number of student's smoking friends was related to his intentions to smoke. Many others have reported similar relationships between friends' use and current smoking by adolescents (Chen & Thompson, 1980; Duryea, Krueter, & Braza, 1981; USDHEW, 1979).

A similar yet even stronger relationship exists for the role of peer influences in illicit drug use. Kandel (1974) reports a direct relation between the level of use and the number of marijuana-using friends. This relationship between substance use and peer use is evident throughout the literature (e.g., Jessor, Collins, & Jessor, 1972; Johnson,

1973; Josephson, 1974; Sadava, 1971). Kandel (1974a) reports that this finding is one of the most consistently replicated findings in drug research. She suggests that "Marijuana use by one's friend may not only be an important variable in explaining adolescent drug use, it may be the critical variable." (p.109)

Personality

Unlike the sociogenically oriented explanations which tend to place heaviest emphasis on environmental influences that induce experimentation and subsequent adoption of the behavior, the personality oriented explanations focus on the intrapersonal characteristics of the subjects. Some studies examine the individual's expectations, values, and attitudes, whereas others consider implied pathological tendencies which put the person at higher risk of using substances.

Personality has been found to be related to substance use by various researchers. For example, it has been found that cigarette smokers are more rebellious, extraverted, rejecting of traditional rules, more tolerant of drug use by others, and have a higher need for autonomy and new experiences (Huba, Wingard, & Bentler, 1979; Mercer & Kohn, 1980). Smoking has been shown to be associated with risk taking among boys and girls, and with high impulsivity for boys but not for girls (Williams, 1973). Chein, Gerard, Lee, and Rosenfeld (1964) found drug abusers to have weak ego

structures, defective superego functioning, inadequate masculine identification, lack of realistic orientation toward the future, and a distrust of major social institutions. Jessor, Graves, Hanson, and Jessor, (1968) found that college students who had low expectations of academic and social recognition drank more often. Problem drinking male college students have also been shown to be more aggressive, impulsive, anxious, depressed, independent, egocentric, low in self-esteem, and inclined to de-emphasize primary and secondary social relationships (Maddox, 1970).

One very frequently examined personality factor is that of rebellion or non-traditionality among substance users. Although some work suggests that noncomformity or deviance is not a precursor to drug use (Huba, 1980), other studies have found a significant relation between drug use and nonconforming behavior or the rejection of adult culture and values (Gorsuch & Butler, 1976; Kohn & Annis, 1978). Jessor, Jessor, and Finney (1973), for example, found a high relation between need for autonomy, rebellious behavior, and marijuana use by high school students. They state that, "The more independence is valued relative to the value placed on achievement the more likely is involvement with marijuana." (p.3) Work by Kandel, Kessler, and Margulies (1978) and by Tudor, Peterson, and Elifson (1980) has shown that dissatisfaction with family can direct the youth away from the home and towards more non-traditional peer groups

which are likely to be involved in substance use of some form. Using Jessor's Problem Behavior Model (Jessor & Jessor, 1977) to predict adolescent cigarette smoking, Rooney and Wright (1982) found peer-group orientation even more predictive of marijuana use than of cigarette use. This could be explained, the authors contended, using Kandel et al.'s (1976) legal-illegal distinction. Since marijuana is illegal and therefore more deviant, its use requires more peer spport and in a sense is even more symbolic of rejecting adult authority and values.

Other supportive evidence for these relationships between rebellion and substance use comes from studies of marijuana and tobacco smoking which found their use to be correlated negatively with attitudes towards church, academic achievement, and involvement with sports (Block, 1975; McAlister, Milburn, & Krosnick, 1979b). A positive correlation has been found between cigarette smoking and active sexual behavior, school misbehavior (Hundleby, Carpenter, Ross, & Mercer, 1982), and a feeling among smokers that they were not living up to expectatons of the school and their parents (Newman, 1970a). Finally, drug use has been postively associated with a liberal or left-wing sociopolitical outlook (Gordon,1972; Johnson, 1973; Kohn & Annis, 1978; Ritter, 1972).

Additional support for the role of deviance or rebelliousness comes from sociological research. Robins (1980), in

a critique of labeling theory, reported findings which suggested that the best cure for deviance was for the person to get older. Accordingly, Kandel (1974a) reports that illegal drug use is almost exclusively a problem of young people, beginning in early teens, peaking between 18 to 25, declining rapidly through the twenties, and reaching lows by age 35. Similarly, other work (NIE, 1979) has shown that adolescent cigarette smokers' attitudes towards authority and adult values are more antagonistic than those of non-smokers. However, attitudes tend to converge as the youths enter young adulthood, and presumably begin to identify more with the adult culture.

Parents as Models

Finally, let us consider the significance of parents in substance use. First the importance of parents as role models of substance use will be considered. Then the influence of childrearing styles on the adoption of cigarette smoking and other substance use will be examined. In regards to parental smoking Kandel et al. (1978) found that parental use of tobacco and alcohol is an important modelling influence that encourages use by the adolescent. Other studies found that children from homes where one parent smokes have a high risk of smoking, and if both parents smoke, an even higher risk, when compared to children from non-smoking homes. When neither parents or siblings smoke the chances of the youngster starting smoking are very low

(Banks, Bewley, Bland, Dean, & Possard, 1978; Bewley & Bland, 1977; NIE, 1979; USDHEW, 1979). Additionally, Krosnick and Judd (1982), in a longitudinal analysis of the differential influences of parents and peers on smoking behavior, found that the influence of peers becomes significantly more important during adolescence, but that the influence of parents does not decrease significantly from its original level. As for other substances it has been found that parents' use of drugs is associated with their childrens' use (Kandel, 1973; Smart & Fejer, 1972).

Parenting Styles

In addition to parental models, the effect of parenting style on the adolescents' development and subsequent choices of self-identities, behaviors, and associates requires consideration. A review by Braucht, Brakarsh, Follingstad, and Berry (1973), for example, reports that adolescent drug users come from homes with deficient parental models in which either one or both parents are overprotecting, overdominating, underdominating, or rejecting; substance use is seen as resulting from the deprivation of parental models or the presence of inadequate models. Although the findings are inconsistent in terms of specific parental inadequacy it should be noted that there is a highly consistent lack of positive parenting in every case. Additionally, Chein et al. (1964) found child-rearing styles in families of addicts to be conducive to the development of inadequate ego and

super-ego strength. Also, it has been found that boys and girls who smoked were were more likely to come from single parent homes (NIE, 1979). Similarly, Tec (1970) found that drug users were more likely to come from broken homes. The influence of single parent homes on substance use could be due to reduced supervision, but it is possible that it may also involve a lack of parental involvement.

Despite these findings, the role of parenting styles in influencing cigarette use specifically has been questioned by some: for example, Kandel et al. (1976), have found that relations with parents only become salient when we consider more serious substances. One study (Brook, Scovell Gordon, & Brook, 1983) reports, however, that fathers' parenting style (e.g. affectionate, emotionally supportive) and personality (e.g. conventional) were significantly related negatively to their sons' use of tobacco. For marijuana use also, Jessor (1979), reported multiple studies which implicated the role of parenting (e.g., parental strictness and control, affection and support) as being linked with use. Similar results for marijuana have been reported by others (Brook, Lukoff, & Whiteman, 1977; Brook, Scovell Gordon, & Brock, 1980).

As for relations with and attitudes towards parents it was found that drug users were more likely to consider the family as not salient, and that their families were not emotionally close (Tudor et al., 1980). Substance users were

likely to spend more time with their peers, (Tudor et al., 1980), and they tended to respect their friends' advice over the advice of their parents when faced with a problem (Kandel, 1974a).

Despite these findings, the role of parenting styles in influencing cigarette use specifically has been questioned by some: for example, Kandel et al. (1976), has found that relations with parents only become salient when we consider more serious substances.

Summary

According to the picture that emerges from these studies, the juvenile cigarette smoker and substance user is a person who associates with other smokers or substance users, whose personality can at least partly be characterized by rebellion. In addition parental modelling of substance use appears to be important, while parenting styles are also potentially important, at least in the case of users of harder drugs.

The Present Study

The most theoreticaly influential work in the area of substance use to date, including cigarette use, and the best in terms of theoretical comprehensiveness and methodological sophistication has been the work of Kandel (Kandel, 1973, 1974a, 1974b, 1975, 1978; Kandel et al, 1978; Kandel et al, 1976) and of Jessor (Jessor, 1976, 1979; Jessor et al, 1972;

Jessor et al, 1968; Jessor et al, 1973; Jessor and Jessor, 1975,1977,1978; Jessor et al, 1973). Kandel proposes a predominently cultural deviance model of adolescent substance use. Although she considers the role of parents, particularly modelling, and of parenting, and certain personality characteristics which increase the risk of using drugs, her emphasis is on the social peer influences which account for the largest amounts of variance in explaining the behavior.

The Jessors tend to take a somewhat more comprehensive social psychological approach in their Problem Behavior Model (Jessor & Jessor, 1977) of adolescent substance use. This model is derived from a social learning orientation (Rotter, 1954; Rotter, Chance, & Phares, 1972) it examines the role of proximal and distal factors that influence the choices regarding substance use behaviors. Their model acknowledges and employs the interactive influences of personality (primarily in terms of attitudinal variables, value preferences, and anticipated self-efficacy) and environment.

The work of Kandel and Jessor is exemplary in being theory-based, and using appropriate methods of data gathering and analysis. Additionally, they used longitudinal methods of study to assess developmental changes over time, and they considered and analyzed a breadth of proximal and distal variables and the interrelations between them.

Although much good research has been done on substance use, especially as exemplified by Jessor and Kandel, Sadava (1975) suggests in reviewing the literature that there is still a need for more developmental knowledge. It is now obvious that certain variables, such as peer influence, account for a large percentage of the variance in predicting adolescent cigarette use. It may therefore be more fruitful to concentrate on less explored territory, such as distal variables, or theory-derived relationships between contributing factors. Jessor (1979) writes of the research on substance use,

> Increasingly, the research has tended to encompass measures of a larger network of psychosocial explanatory variables in contrast to the earlier preoccupation with demography and with epidemiological mapping. Along with this trend toward enlargement of the measurement framework, there has been more attention paid to distal variables--variables that are less obvious or that are linked to marijuana use by theory--and less exclusive interest in proximal variables....Rather, it has been an attempt to understand marijuana use as part of a larger pattern of behavioral adaptation to life situations and to explore its commonalities with other forms of socially structured action. (p.338)

It is with this in mind that the following study was planned. In keeping with much of the work just reviewed, this study will examine the contributory roles of parents, peers, and personality in their relation to cigarette use. Additionally, three specific sets of relationships between these variables will be considered--Questions I to III, as next discussed. Each question will be briefly explained and

then a more elaborate theoretical foundation will be provided for it in the subsequent section. It should be remembered that this study consists of data from the first of three waves of data that will be collected from the same sample. The questions to be posed to the present data can only look at the relationships cross-sectionally. No conclusive statements can be made regarding the causal nature of any of the variables. Now let us consider the specific questions.

Question I

Question I examines a hypothetical relationship between parenting styles, personality, and the tendency to affiliate with substance using peers. The nature of this relationship is that poor quality parenting (unloving, non-communicative, authoritarian, uninvolved) lowers the child's self-esteem,and increases both the youth's need for peer approval, and the perceived social utility of engaging in rebellious activities such as cigarette use. The child thus inclined is attracted to substance-using youth. Involvement with these youth increases the probability of becoming involved in cigarette/substance use.

First research on the role of parenting styles on personality, especially self-esteem and need for peer approval, will be reviewed. Then the relationship of these personality variables to peer affiliation choices and substance use will be discussed.

Parenting and Personality

There is a good deal of evidence that the nature of parenting affects the emotional development and maturity of the young person. In reviewing the literature Coopersmith (1967) suggested that the research on parenting tended to display two major conceptual dimensions: love-hostility and control-autonomy. Gardner's (1982) review of the developmental research found parenting styles to be classified as warm or hostile, consistent or inconsistent in their handling of misbehavior, overprotective or neglectful, anxious or relaxed, and generally effective or ineffective. In regard to the most effective parenting styles, Gardner concluded that,

> Extremes of parental behavior are non-productive; that parental permissiveness and strictness will always produce some aggressiveness in the children, but that the way in which it is expressed will vary; and that warmth and effective communication spiced with a moderate degree of control seems to produce children who are relatively happy and well adapted in this society. (p.313)

A review of the literature by Maccoby (1980) found that parents who were high in acceptance and affection tended to produce children who were securely attached, noncoercive and relatively compliant, more considerate of classmates and more likely to refer to internalized moral standards when discussing reasons for conforming to moral rules, more altruistic at a young age and higher in self-esteem. Similar positive results were found for the effect of high com-

munication between parent and child. The children from these families were rated as being more competent, cheerful, independent, self-controlled, socially responsible, planful, fearlessly interactive with other children, dominant, and fairly aggressive, and high in self-esteem.

Parenting, Self-Esteem, and Need For Peer Approval

One fairly consistent finding in the parenting literature is the beneficial effect of positive parenting on self-esteem. Coopersmith (1967) in his extensive work on this topic found, "The most significant antecedent of self-esteem to be the amount of respectful, accepting, and concerned treatment that an individual receives from the significant others in his life." (p.37) (Obviously the parents would be of vital importance in the life of the younger child.) In addition it was found that the person's history of successes and failures was also important. He reports that children high in self-esteem tended to have parents who were affectionate, democratic, communicative, and who had high expectations of their children concerning their participation in the family, achievement, and compliance with reasonable rules. These parents typically had high self-esteem themselves, and were more likely to have a positive relationship with each other.

Although parenting directly influences self-esteem, there has not been much indication in the substance use literature that this variable is directly related to

cigarette use. Kandel et al. (1976) found intrapersonal characteristics, such as self-esteem, to not be predictive of cigarette, alcohol, or marijuana use. Similarly Jessor (1979) in a review of the marijuana literature reports that self-esteem has provided inconsistent results in its effect on use.

As for need for peer approval, there is no evidence in the literature linking this concept with parenting and substance use specifically. The Crowne-Marlowe Approval Motive construct (Crowne & Marlowe, 1964) has been found to be negatively related to marijuana use (Brook et al., 1977). That construct, however, is different from need for peer approval as examined in this study. (Need for peer approval as used in the present study is concerned with seeking approval from adolescent peers, perhaps by engaging in unconventional behaviors; the Crowne-Marlowe construct on the other hand has more to do with seeking approval (not necessarily from peers) in more conventional ways e.g., being overly polite.)

As for the relation to cigarette use it is probable that the child from the more positive home environment and thus the child of higher self-esteem is less likely to become involved in substance use for several reasons despite the heavy influence in favor of the behavior from the peer culture. First is the matter of parental control. If, as has been shown, the parents of the child who is high in

self-esteem set more rules for behavior and are more diligent in their observance, then it is likely that their increased scrutiny will countervail the pressure toward curious experimentation and the opportunity to use cigarettes or other substances. Secondly, because of their more traditional orientation, and following the example of their parents, high self-esteem children are less likely to select non-traditional youth as friends, but are more likely to be concerned about their achievement and longer range goals in such traditional domains as academics. Finally, even if the non-traditional peer influence happens to be strong in a particular environment or situation, Coopersmith (1967) found that children with higher self-esteem tended to be more independent of external social influences.

Question II

Question II examines the relationship between parenting styles, self-esteem, and several achievement/social orientation variables. The hypothetical relation posited is that students who have lower self-esteem as a result of poor parenting will be less likely to succeed in those areas valued by the adult culture (e.g., academics and sports). Due to their lowered self-esteem they will avoid or do poorly in those traditional areas, and will instead opt for behaviors within the youth culture such as substance use, that provide a means of group identification, and peer and self-acceptance.

The Youth Culture

Coleman (1961) argues for the existence of a youth subculture in the United States. He contends that in our country a unique subculture has arisen due to various factors such as: less direct adult supervision of youth as they enter junior high and high school, more free time (as they are not typically members of the work force), and more discretionary income to spend on products of their culture. This youth culture, he argues, has its owns values and symbols of status often different, and sometimes at odds with, the ways the adult world would like the youth to behave.

One characteristic of the contemporary youth culture is the use of various substances (Kandel, 1974). McGlothlin (1975) contends that the middle class drug epidemic is basically a fad. Considering the continually prevailing use of certain substances, such as alcohol and cigarettes, and the regular increases in the use of marijuana, however, it is probably inappropriate to call it a fad (Parry, 1979). It has been suggested that the members of the youth subculture come to have a common understanding or shared value system based upon the use of drugs that is symbolic of disidentification with the parental/adult culture (Kandel, 1973). McGuire (1973) states that ideological similarity is more important than demographic in determining with whom we agree. Kandel (1973) writes that

> With the exception of certain demographic charac-

> teristics (such as age, sex and race) on no other activity or attitudes (such as school attitudes and performance, deviant behaviors of various kinds, political attitudes, drug related attitudes, and attitudes toward parents) is similarity between friends as great as it is in respect to illegal drug use. (p.1069)

Illegal drugs thus distinguishes the youth from the culture they wish to avoid.

The sociocultural nature of substance use is also indicated by the relative "favored status" of various substances for particular groups. Parry (1979) reports on longitudinal trends that reveal the waxing and waning in popularity of particular substances for particular cohorts. Sadava (1975) remarks about this phenomenon of the cultural appropriateness and utility of certain substances. He writes of substance use in India,

> The highest caste, and Rajput or warrior-ruler caste use alcohol to release sexual and aggressive impulses as do the untouchables. The Brahmin, a religious leader caste, does not use daru (a strong alcoholic beverage) but does use bhang (a mild canabis beverage); cannabis use functions here to play down feelings and impulses, and to achieve a mystical experience. Again, both the choice of drugs and the functions of use of the drug chosen are consistent with the social role of the user. (p.31)

He similarly reports on how physician addicts and middle class student users of psychedelics share socioeconomic security, but differ in their choice of drugs and social context of use.

Self-Esteem, Self-Efficacy, and Achievement

The literature strongly indicates that youth who use substances are partly characterized by lower achievement in conventional areas (Jessor et al., 1973). But it is unclear why this should be. Perhaps this behavior really follows from lowered self esteem, and a concomitantly reduced sense of ability to achieve those goals valued by the more traditional society. Lowered self-esteem is at least partly related to the amount of positive parenting that the child receives.

First consider the role of parents in the development of adolescent self-esteem. As mentioned earlier, Coopersmith (1967) dichotomized the effective variables in parenting into two dimensions: love-hostility and control-autonomy. One characteristic of the type of postive parenting that leads to high self-esteem is the existence of clear, legitimate, and consistently enforced rules in the home. Coopersmith (1967) writes,

> Thus we find families of children with high self-esteem not only establish the clearest and most extensive set of rules, but are also the most zealous in enforcing them. This establishes the authority of the parent, defines the environment, and provides the standards by which the child can judge his competence and progress. (p. 23-24)

Low self-esteem children on the other hand had parents who set few poorly defined rules, who used harsh and autocratic methods of control, and who did not express their authority at all, or did so vaguely lacking clarity and force.

Apparently, then, democratic control on the part of the parent gives the child a sense of love, that his or her parents care for him, and sets limits within which the child can master his environment, move about with certainty as to what is acceptable behavior, and thus have a greater sense of self/environment mastery and concomitantly greater self-efficacy.

An interesting counterpoint to this last finding comes from Mercer and Kohn (1980) who found that certain child rearing practices (most noteably love from the mother and positive control by the father) tend to produce more conservative children, and that conservatism correlates negatively with liberal sexual and drug use attitudes. It is conceivable that parental love establishes the parents as legitimate standards for the children to emulate, so the children thus tend to be more like their parents, i.e. more traditional in their values, self-image, and sources of efficacy and achievement. Positive control delineates for the child appropriate alternative behaviors, granting the child a more specific domain to master, and planting early the seeds of success which Coopersmith (1967) has found to be an important contributor to the development of self-esteem.

Alternatives to Conventional Achievement

Now let us consider the role of self-esteem in relation to achievement in conventional domains. Coopersmith (1967) found that, "Despite limitations in ability, performance,

and social skills, persons with low self-esteem are just as likely to attach importance to intelligence, achievement, and social success as are individuals with high self-esteem who tend to be superior in these regards." (p.243) But valuing those behaviors does not necessarily mean that youth who are low in self-esteem will strive to succeed in them. Social Learning Theory (Rotter, 1954; Rotter et al., 1972) suggests that individuals' behaviors are directed by their expectation for successful attainment of some goal and by the personal value of that goal to the individual. Perhaps children with low self-esteem would have a diminished sense of self-efficacy for attaining goals that are valued by the adult culture (e.g., academics and sports). So they might begin to avoid those avenues of achievement and find other One possibility would be affiliation with a particular group with non-traditional standards of achievement more attainable for young people low in self-esteem. In support of this idea Jessor (1979) has reported that "Marijuana use can be a response to frustration, to the perception of blocked access to valued goals, and the anticipation of failure." (p.344)

Bandura (1977a,b), in his research on modeling and efficacy, suggests that if models are too difficult to emulate then some other model will be used. Similarly, he has reported that the amount of effort people expend in coping with a given situation is related to their perceived self-

efficacy for success. Considering, therefore, that youth who are low in self-esteem might have a lower sense of self-efficacy for achievement in traditional domains, these youth may be more inclined to affiliate with other substance users who similarly avoid conventional avenues of recognition.

In support of this notion Faunce (1984) has found that the standards of particular group affiliations can override the more general prevailing standards of the school. For example, academic achievement and self-esteem were indeed related among a sample of high school seniors. He reported, however, that,

> The effect of academic achievement upon self-esteem, however, appeared to vary depending upon patterns of association with other students and upon the values that could be inferred as the bases for status placement in different networks....This evidence supports the idea that our conception of self, and, consequently, our degree of concern for achievement in various areas, is anchored primarily in ongoing social relationships in recurring social settings. (p.3)

So instead of competing in a culture in which they feel doomed to fail they join another group with norms more appropriate to their self-perceived level of competence and ability.

Question III

This question examines the relationship between three personality variables (anxiety, self-esteem, and need for peer approval), group substance use norms, and

persuadability. It is hypothesized that if students are low in self-esteem, or high in anxiety or need for peer approval their substance use behaviors will match the normative behaviors of their peer group as a result of the role of these personality variables in persuasibility. Thus if students are high in anxiety or need for peer approval or low in self-esteem they will be more likely to use the problematic substances in ways that match those of their friends.

Personality and Persuasion

Three personality variables--self-esteem, need for peer approval, and manifest anxiety--have been found in social psychological research to be related to vulnerability to persuasion (Coopersmith, 1967; Crowne & Marlowe, 1964; Janis, 1954; McGuire, 1969). High self-esteem may inoculate one against social influence by increasing a sense of the veracity of one's own beliefs and actions regardless of group norms and pressures. For example, the use of various substances as an act of rebellion and defiance may not serve to make one independent and unique, but instead may be the result of tendencies to conform to prevailing social and personally salient cultural influences. Coopersmith (1967) remarks on the variations in responses in the famous studies by Asch (1956) on conformity to group opinion,

> >From the self-trust required for social independence and creative expression stems the ability to reject opinions that are popular and to ignore con-

> ventions of correctness. In the self-trusting innovator such acts of rejection are less acts of intentional rebellion than they are a personal affirmation of his own perceptions. This is clearly revealed by the responses expressed in the conformity experiment, in which the persons who resisted group pressures and expressed independent opinions were affirming their perceptions of the line lengths rather than rebelling against popular opinions. (p. 58)

Thus, although one may argue that the non-substance using youth is merely conforming to adult values, it must be noted that in situations such as the Asch experiment in which the choices were not anchored in cultural values but were determined rather by the individual's perceptions and group pressures, students who were higher in self-esteem were more likely to adhere to their perceptions despite the opposing opinions of the majority.

In addition to the role of self-esteem in persuadability, the effects of need for peer approval and anxiety will also be examined. In a review of the literature, Crowne and Marlowe (1964) found approval seeking to be positively related to influenceability, and as such it is anticipated that the youth who are more in need of peer approval will be more influenced by the normative substance use attitudes and behaviors of their group. As for anxiety, Leventhal (1970) found a positive correlation between fear arousal and acceptance of the communicator's recommendations, although he reported stronger effects for measures of attitude change than for actual behavior. Others have found some positive

relation between anxiety, self-esteem, and persuadability (Fox & Bauer, 1967; Lehman, 1970; Zellner, 1970). Thus it will be suggested that those students who are higher in either anxiety or need for peer approval, or lower in self-esteem, will respond more generally in a compliant way to the predominent behavior of their normative peer group in regards to substance use.

Conclusion

A good deal is already known regarding many of the effects of parents, peers, and personality on adolescent cigarette/substance use. The present study will examine many of the same general relationships of parents, peers, and personality on a sample of seventh grade students. In addition to looking at the general influence of these variables the interrelationships of several of the variables will be considered based on the theoretical rationale presented in this chapter. Now let use examine the characteristics of the students in this sample, and consider the general and more specific findings.

METHODS

Subjects

A sample of 1,194 seventh grade students from five junior high and middle schools in three mid-California counties provided the data. The school populations were predominently white (82%) and equivalent by sex (51% male) (Table 1). They were also middle-income according to their respective County Offices of Education. The average level of father's education for each school (a general indicator of family socio-economic status (Hollingshead & Redlich, 1958)) was 'some college' as reported by the students. The average student's age at the time of survey was 12.7 years.

Table 1
Demographic Characteristics of Sample Schools

School	7th Graders	%Male	%White
North	282	53%	84%
Coast	196	55%	85%
Central	240	51%	67%
Valley	180	44%	82%
South	283	50%	93%

The schools were public middle and junior high schools selected from an area of three adjacent counties. Parochial schools were excluded from the sample, as religiosity and affiliation with religious organizations correlates negatively with the use of licit and ilicit substances (Block, 1975). In an effort to maximize the comparability of the schools, and to have an adequate number of students who used

substances, this exclusion was necessary.

A truly representative sample of a large segment of American youth was not feasible because of limited resources. An effort was made, however, to obtain as representative as possible a sample from the limited geographical study area. The following protocol was developed and employed for selecting the sample of schools to be surveyed: (1) schools were selected upon the recommendation of the three respective County Offices of Education as schools believed to be fairly equivalent in size, and in composition by race and SES; (2) willingness of the schools to participate in the research; (3) logistical suitability of the school, particularly with respect to scheduling of classes; and (4) the needs of the funding agency for involvement in its three target counties.

Instrument

All the seventh-grade students in these five schools who were present on the collection day in mid-May, 1983, were included in the study. The survey administered as a basis for this study consisted of 131 self-report items, and a bogus-pipeline measure (Jones & Sigall, 1971) which is explained in a subsequent section on validity. (See Appendix A for a copy of the survey.) The survey contained several baseline questions to ascertain substance use rates among the students. Apart from a few demographic questions and information on which to base an identification code, the

questions were included to test various hypotheses concerning adolescent smoking.

Several of the key variables used to test these hypotheses were based on scales, either developed for this study or adapted from the existing literature. The most important variables are: quality of family life (QFL), need for peer approval (NPA), self-esteem (SE), anxiety (ANX), subject's cigarette use (CIG), subject's substance use (SELFSUB), friends' normative cigarette use (GRPCIG), friends' normative substance use (GRPSUB), parental cigarette use (PARSMOK), perceived social utility of smoking (PSU), health belief model, or health beliefs regarding smoking cigarettes (HB), behavioral intention to smoke cigarettes (BI), academic orientation (ACAD), and sociability (SOC).

Measures

First we consider how the questionnaires were constructed. Then specific key scales will be discussed in more detail, while the remaining variables will be briefly explained.

Scale Construction

One of the major purposes of the questionnaire was to measure certain qualities or constructs, such as anxiety and self-esteem. To this end, scales were typically employed rather than single items. For every key scalar variable,

existing scales were sought that measured it. If such scales were not available new scales had to be devised.

Existing scales, such as the Childrens' Manifest Anxiety Scale (Castenda, 1956), were never used in their entirety as they were too long to be combined with other necessary components of this survey. Only a few items could be included for each variable since the questionnaire had to be completed during a single classroom period, and many variables had to be represented by scales. Thus the best items, in terms of face validity and suitability to the sample, were selected for these new scales. The scales thus created ranged from three items for health beliefs (HB) to 15 items for quality of family life (QFL). These items for the 14 key variables were then interspersed in the questionnaire. (A list of the items for each scalar variable initially chosen for the questionnaire is located in Appendix B. Items that were finally used to create the composites used in this analysis are indicated by a ** mark.)

After the questionnaires were completed by the students all of the relevant variables were examined. Items for which data were missing in more than 25 percent of the questionnaires were to be rejected; no items attained that level, however. The scales were then analyzed using principal component analysis. Items which had the highest factor loadings (.40 or larger) were selected, and these items were measured for their scalar reliability; Cronbach's Alpha

(Cronbach, 1951) was the reliability measure employed. Items from the scales that lowered the resultant alpha were removed. Thus a final subset of items from the questionnaire scales was available. The items for representing a particular variable were then combined and this composite measure was used as the index of the construct for the anlyses. (See Table 2 for a summary of the scales created.)

Table 2
Summary of Scale Construction

Scale Content	Number Items	Cronbach Alpha
Qfl	10	.90
Npa	8	.64
Se	7	.75
Anx	6	.71
Parsmok	2	.49
Paratt	2	.81
Cig	1	XX
Selfsub	7	.79
Grpcig	1	XX
Grpsub	3	.69
Soc	4	.46
Bi	2	.81
Acad	3	.59
Psu	8	.78
Hb	2	.77

XX Only one item was selected therefore no alpha is supplied

Key:
QFL--Quality of family life
NPA--Need for peer approval
SE--Self-esteem
ANX--Manifest anxiety
CIG--Subject's use of cigarettes
SELFSUB--Subject's use of substances other than cigarettes
GRPCIG--Friends' use of cigarettes
GRPSUB--Friends' use of substances other than cigarettes
BI--Behavioral intention to smoke cigarettes
PSU--Perceived social utility of smoking cigarettes
HB--Health beliefs regarding the effects of smoking cigarettes
SOC--General interest in sociability
ACAD--Academic orientation, i.e., valuing good grades, liking school
PARSMOK--parental cigarette smoking
PARATT--Parental attitudes about their childrens' use of cigarettes

In constructing the final scales missing data were handled using a method suggested by Hull (1979). If more than

33 percent of the scale items were missing for a subject, that subject was recorded as having no data for the scale. If fewer than 33 percent of the items were missing, the total score for the scale was divided by the number of non-missing items. Thus the subject's score was an average for the non-missing items. For subjects with all items available, the total score was likewise divided by the total number of items (all non-missing). In this way the scale score for each subject was the mean item score for the scale, which had the advantage of expressing the score in terms of its original metric.

Modifications of Original Scales

In every case in which an original scale taken from the literature was employed, only a portion was included. Despite the fact that this could jeopardize its integrity and lower its reliability and validity, such abbreviation was necessary in order to permit inclusion of measures of the relevant variables in limited time.

The response choices were also always modified. The original self-esteem and anxiety scales, for example, used a simple yes-no response format. In contrast this survey required students to select one of five options on a Likert-type scale ranging from 'Never true' to 'Almost always true'. This was done to standardize the format across scales and to increase the range of responses.

Key Measures

Quality of Family Life (QFL)

Quality of Family Life (QFL) is a measure of the students' perceptions of how their parents treat them. To measure this construct items from the Bronfenbrenner Parent Behavior Questionnaire (Siegelman, 1965) were employed. This personality measure is a self-report survey designed for fourth through sixth grade. The Bronfenbrenner Scale consists of 45 items used to measure 15 variables, three items per variable. The variables of concern are: nurturance, affective reward, instrumental companionship, affiliative companionship, etc. The internal consistency reliabilities for the original scale averaged 0.52 for males, and 0.59 for females. Siegelman (1965) suggested a way to improve the reliabilities by merging the items from several scales. Factor score reliabilities from the merged scales ranged from 0.70 to 0.91, thus indicating an improvement in reliability from using more items in the scale.

For the present survey 13 of the original 45 items were chosen for the quality of family life (QFL) variable. As mentioned earlier items were selected on the basis of face validity and suitability to the contemporary audience. In several places the language was slightly modified to make it more appropriate to a seventh-grade audience.

Self-esteem (SE)

For self-esteem, Coopersmith's (1967) Self-Esteem Inventory was used. This self-report personality inventory of self-esteem consists of 50 items concerned with the subject's self-attitudes in regards to peers, parents, school, and personal interests. The original questionnaire was constructed for use with fifth and sixth graders. The test-retest reliability for the inventory after a five week interval was 0.88. For the current study ten of the original items were selected. The items were reworded at times for use with a seventh-grade audience.

Need for peer approval (NPA)

The items included in Need for Peer Approval (NPA) were either original or modifications of items from a youth substance use survey developed at U.C. Berkeley (Risk and Youth Project, 1982), as there was no suitable scale already available. Although there seems to be some relationship between peer approval seeking and the Crowne-Marlowe social desirability construct (Crowne & Marlowe, 1964), and there is a childrens' version (Crandall, 1965), that scale was not used. Crowne-Marlowe was inappropriate for present purposes as it measures a person's tendency to behave in socially desirable ways, i.e., according to approved middle-class mores (Johnson, 1971), whereas the present study sought to assess peer approval motivation associated with rejection of middle-class mores in favor of those of the youth culture.

A new scale was thus required. As almost half of the items are original, and those which were borrowed were all modified, some considerably, there are no pre-existing data on internal consistency, or test-retest reliability for this scale.

Anxiety (ANX)

Items for the anxiety scale were selected from the Children's Form of the Manifest Anxiety Scale (Castenada, 1956). This personality measure is a self-report questionnaire designed for ages six to twelve. The original scale contains 53 items, 43 of which are anxiety items; the other 11 lie scale items. The test-retest reliability for the anxiety scale was 0.90 after a one week inteval in one study. Also the anxiety and lie scales were found to have a low correltion with each other (-0.11 to 0.22). Finally, the CMAS correlated .78 with Sarason's Score for Anxiety indicating some construct validity (Johnson, 1971). Ten of the original items from Castenada's scale were used for the Anxiety (ANX) variable in this study. Several of these items were modified to be more suitable for the contemporary audience.

Substance Use

The primary substance use variable is the subject's own cigarette use behavior (CIG). This measure was assessed by asking the subjects to report on their frequency of

cigarette consumption. They could choose from one of ten categories ranging from having never tried cigarettes or just experimented once or twice, through various levels of regular use, to quitting. Students who claimed to have quit smoking cigarettes were excluded from the analyses since their previous level of use is unknown. All other students who indicated that they smoked cigarettes with some degree of frequency, ranging from a few cigarettes a month to a pack a day, were combined into one user group for this variable. Thus there were three basic comparison groups: (1) nonusers, who claimed that they had never tried a cigarette; (2) experimenters, who tried it once or twice; and (3) users, who indicated that they smoked with some degree of regularity.

In addition to cigarette use, the students were also asked to report on the frequency of use of other relevant substances--alcohol, marijuana, and all other illicit drugs. The response categories were adapted to the different use patterns typically associated with different substances. For each of the three substance categories (alcohol, marijuana, and drugs) three use levels were created as was done for cigarettes. (For some analyses these non-cigarette substances are grouped as a single index of the subject's degree of involvement with other substances (SELFSUB)).

In addition to reporting on their own substance behaviors the subjects were asked to report on the number of

their best friends who use each of the substances. These questions read, "Of your three closest friends, how many of them smoke cigarettes (smoke marijuana, drink alcohol, use stronger drugs)?" These variables were included to assess the contributing influence of peer use. Peer groups cigarette smoking (GRPCIG) is the main variable of interest. The other peer variables with respect to substance use will either be considered individually, or at times will be combined and the composite substance use index (GRPSUB) used in the analysis.

The subjects were also asked to report on their parents' cigarette use (PARSMOK). These items asked if each parent was a current smoker, non-smoker, or ex-smoker. Parental attitudes towards smoking were also examined (PARATT).

Additional Variables

Some further variables concern various attitudinal qualities relevant to the initiation and maintenance of smoking: Perceived Social Utility (PSU) of smoking; health beliefs about smoking--Health Beliefs (HB); and Behavioral Intention (BI) to smoke cigarettes. Perceived Social Utility (PSU) is a composite of several items that assess perception of the social attractiveness and usefullness of cigarette smoking. For example, the students were asked to rate smokers and nonsmokers in terms of attractiveness, sophistication, sexiness, and independence. The Health

Beliefs (HB) variable consists of two items that ask the students to report their beliefs about various health costs incurred by cigarette smoking: for example, "Do you think smoking cigarettes can cause very serious illness?" And finally, the Behavioral Intention (BI) variable asks the students to report their intentions about smoking in one and five years.

The final variables to be tested are relevant as indicators of orientation to the youth culture. The first, general sociability (SOC), a measure of sociability and orientation towards youth, is composed of a number of questions assessing the importance students place on having friends and being liked. The next, a measure of academic orientation (ACAD), is included for its possible negative relation to orientation to the youth culture. This measure is a composite of self-reported grade-point average and attitudinal questions about school.

Pilot Test

The questionnaire was pilot tested on a sample of 100 seventh graders in a school comparable to the target schools. By noting which items proved difficult for the students, problem questions were ascertained and were improved or eliminated. The questionnaire was found to be satisfactory overall in length, reading level, interest, and ease of administration.

Confidentiality

A code was used that allowed the students to answer questions on their substance use behaviors with virtual anonymity. The code was necessary to allow these surveys to be matched with follow-up surveys to be taken by the students one and two years hence. Williams, Eng, Botvin, Hill, & Wynder (1979) have found that the guarantee of confidentiality and anonymity using codes results in valid self-reports as revealed by subsequent physiological measurement. It was hoped that this increased anonymity would bolster the students' sense of security and thus their honesty in answering the often personal and risky questions.

The code used consisted of the last letter of the student's last name, the last letter of first name, the day of birth, sex, and finally race. With these items a numeric code was created that could be used for future case-by-case matching without knowing who the students were.

Validity

In addition to the code, a "bogus pipeline" measure (Evans, Hansen, & Mittelmark, 1977; Jones & Sigall, 1971) was also included to improve the validity of the self-report measure. The "bogus pipeline" consisted simply of blowing up a small balloon. The students were told that the balloon would contain a measure of the carbon monoxide in their lungs, which it did, and that this indicator could be used

to tell if they had smoked cigarettes in the past few days. Although it was potentially possible actually to measure the expired carbon monoxide, this was not done due to the unreliability of the particular method employed. All of the students who took the survey blew up the balloon unless they had some physical condition that prevented them from doing it.

Parental Consent

The parents of the subjects were informed about the survey by a letter from the schools. If they did not want their child to participate in the survey they were asked to send a note with the child and the student could then abstain. On the day of the data collection, less than one percent of the students were unwilling or unable to participate in the survey.

Procedures

Almost all of the assitants for the data collection portion of the study were University of California Santa Cruz undergraduates, typically psychology majors. They were given about one hour of instruction, familiarizing them with the questionnaire, the procedures, and the rules for operating in the school.

During each data collection period there were typically two or three assistants in each classroom. Each class had a person in charge of the data collection, typically an older

more mature student or the experimenter. The experimenter would usually go to the various rooms in which the collection was in progress to check on the progress or answer any questions. The teachers were asked either to leave the room during the administration of the questionnaires or to remain at their desks doing their own work. This was to minimize the fear that the teacher might be looking at the students' answers. All of the teachers were very helpful in this regard.

Before the survey began, the assistants would read the instructions. (See Appendix C for a copy of the instructions.) After reading the instructions the questionnaires were passed out. As the students worked on their questionnaires the assistants roved about answering any questions, and maintaining order and vigilance on the task.

When everyone was done with the survey, or five minutes before the end of the period, the balloons for the "bogus pipeline" measure were distributed to the students. If a student was not finished with his questionnaire he was asked to continue working, and not given a balloon. The instructions for properly filling the balloons were read and the students were led through the process as a group. When everyone had filled up their balloons and sealed them, the assistants collected them. (The instructions for administering the balloon procedure are in Appendix C.)

Data Preparation and Analysis

Upon completing collection of the data the questionnaires were prepared for coding and keypunching. Coders were hired and trained. The majority of the coding staff were University of California at Santa Cruz undergraduates. Coders were blind to the hypotheses. They typically worked under the direct supervision of the experimenter. After coding and checking were completed, the data sheets were taken to a professional keypunching service. The final data set was analyzed using the University of California Santa Cruz' IBM 360 computer.

RESULTS

Before presenting analyses to test the three major questions of the study, an overview of relevant findings from peer, parent, and personality variables is first presented.

Table 3 presents the actual prevalence of use of each substance for the sample. Alcohol is the most widely used substance for both males and females (31% and 26% respectively). Cigarettes and marijuana are next with more girls than boys smoking cigarettes, while the opposite is true for marijuana. (The sex difference for cigarettes is not significant.) Finally, a very small number of students claim to use harder drugs with any frequency (an average of 2% for both sexes).

Table 3
Percent of Users Across Substances (Male/Female)

	Use category		
Substance	Nonuser	Experiment	User
Cigarette	41/43	46/38	13/19
Alcohol	38/50	32/26	30/24
Marijuana	64/70	17/15	19/15
Drugs	92/95	5/4	3/1

Table 4 shows the correlations between the key composite variables and the substance use behaviors of the subjects. Most of the variables are highly correlated ($p<0.001$) with the categories of substance use. The proxi-

mal social variables directly related to substance use, GRPCIG (friends' use of cigarettes) and GRPSUB (friends' use of other substances), have sizeable relationships with the substances. The attitudinal variable BI (Behavioral Intention) shows a substantial relationship with all substances. Another attitudinal variable--HB, Health beliefs about smoking--shows a small to moderate negative relationship. The last attitudinal variable--PSU, Perceived social utility of using cigarettes--shows a rather small correlation. Except for Need for peer approval (NPA) the other two personality variables, Anxiety (ANX) and Self-esteem (SE), are not significantly related to use, and the relationship of NPA to use is small. Sociability (SOC) and Academic orientation (ACAD) show similar although opposite relationships with use, academic orientation being negatively correlated. Finally, parental attitude (PARATT) correlates moderately and appears to be more important than actual parental smoking behavior (PARSMOK) which shows a small positive relationship. (A higher score on the PARATT variable indicates a greater tolerance for their childrens' smoking.)

Table 4
Pearson Correlations Between Key Variables and Substance Use Behavior Measures

Variables	Cigarette use	Alcohol use	Marijuana use	Drug use
Qfl	-.02	-.05*	-.03	-.03
Npa	.10***	.09***	.06*	.02
Se	.004	-.01	-.02	-.07**
Anx	-.01	-.05*	-.01	.02
Cig	--	.56***	.57***	.23***
Selfsub	.55***	.72***	.74***	.52***
Grpcig	.52***	.33***	.39***	.23***
Grpsub	.49***	.63***	.61***	.30***
Bi	.61***	.46***	.44***	.27***
Psu	.08**	.11***	.06*	.07**
Hb	-.18***	-.20***	-.24***	-.23***
Soc	.30***	.35***	.30***	.13***
Acad	-.26***	-.32***	-.25***	-.17***
Parsmok	.12***	.19***	.13***	.04
Paratt	.36***	.31***	.29***	.23***

* p<.05 **p<.01 ***p<.001

KEY:
QFL--Quality of family life
NPA--Need for peer approval
SE--Self-esteem
ANX--Manifest Anxiety
CIG--Subject's use of cigarettes
SELFSUB--Subject's use of substances other than cigarettes
GRPCIG--Friends' use of cigarettes
GRPSUB--Friends' use of substances other than cigarettes
BI--Behavioral intention to smoke cigarettes
PSU--Perceived social utility of smoking cigarettes
HB--Health beliefs regarding the effects of smoking cigarettes
SOC--General interest in sociability
ACAD--Academic orientation, i.e., valuing good grades, liking school
PARSMOK-Parental cigarette smoking
PARATT--Parental attitudes about their childrens' use of cigarettes

Table 5 presents a summary of ANOVAs of cigarette use for each of the major variables. Differences are compared

across levels of use, i.e., nonuser, experimenter, and user categories. As can be seen significant differences ($p<0.001$) exist on all the major variables across levels of use except for the three measures--Quality of family life (QFL), Self-esteem (SE) and Anxiety (ANX). Significance tests for multiple comparisons were carried out. In almost every case it was found that not only did the users differ from both the experimenters and nonusers, but also that the experimenters differed significantly from the nonusers. The one exception to this trend was for health beliefs (HB) in which, although users and experimenters both differed significantly from nonusers, it was found that users and experimenters did not differ. Although LSD, Duncan, and Scheffe tests were used, and the results were relatively stable, the Scheffe results will be reported with an alpha of .05. Although the Scheffe method is the most conservative of these tests, and therefore most likely to produce Type II errors, it is also the most reliable for cases in which more than two means are analyzed, and in which the n's differ across levels of comparison (Nie, 1975).

In addition, effect sizes were computed for these variables using a method suggested by Friedman (1968). The results range from a small effect of .12 for need for peer approval (NPA) to a very large effect for behavioral intention (BI) of .63. The average effect size for all the significant variables is .35. Cohen (1977) suggests that .40

is a large effect size. The average for the key variables in this study for cigarette use is .35.

Table 5
Mean Scores on Key Variables Across Cigarette Use Categories (ANOVA)

Variables	Cigarette Use Category: Nonuse	Expr	User	F	Effect Size
Qfl	3.00	2.98	2.98	0.97	
Npa	1.91	1.96	2.15	7.25***U	.12
Se	2.81	2.75	2.82	0.61	
Anx	1.88	1.88	1.82	0.37	
Selfsub	0.19	0.53	1.50	161.44***UE	.48
Grpcig	.30	.50	2.13	322.74***UE	.61
Grpsub	0.43	0.96	1.98	176.20***UE	.50
Bi	0.39	0.89	2.36	364.52***UE	.63
Psu	1.79	1.80	2.14	7.51***U	.12
Hb	3.86	3.83	3.49	23.68***U	.20
Soc	2.17	2.50	2.89	63.33***UE	.34
Acad	3.14	2.80	2.53	41.27***UE	.27
Parsmok	0.81	1.14	1.18	24.98***OE	.23
Paratt	0.50	0.82	1.38	61.91***UE	.35

* p<.05 **p<.01 ***p<.001
U Users and nonusers are significantly different
E Experimenters and nonusers are significantly different
O Users significantly different from nonusers only

Finally, in Table 6 the results of a simultaneous regression of the key variables used to predict subject cigarette use is presented. This analysis produced a multiple R of .66 for boys and .74 for girls. The adjusted R squares indicate that these variables account for 44 percent of the variance in boys' use of cigarettes and 53 percent of the variance in girls' use.

The two groups are fairly similar on most of the variables with a few interesting exceptions. Academic

orientation is negatively related to use for boys but not for girls. For boys, parental attitude is important while parental use is not; the opposite appears to be the case for girls. Finally, for girls substance use by friends (GRPSUB) appears to be more of a important influence while for boys substance use by self (SELFSUB) appears to be more important.

In addition a stepwise regression was performed, which showed that behavioral intention to smoke (BI) was the best predictor of current cigarette use for both males and females ($p<0.001$). For boys the other significant variables, in decreasing order, were: subject's use of substances (SELFSUB), friends' use of cigarettes (GRPCIG), parental attitudes (PARATT), sociability (SOC), and academic orientation (ACAD). All were significant at the $p<0.001$ level. For girls the other significant contributors, in decreasing order, were: friends' use of cigarettes (GRPCIG), parental smoking (PARSMOK), friends' use of substances (GRPSUB) (all at $p<0.001$), and parental attitudes (PARATT) ($p<0.05$).

Table 6
Multiple Regression of Key Variables
Predicting Cigarette Use

	Male		Female	
Variables	Beta	F	Beta	F
Grpsub	.032	.33	.105	3.39***
Qfl	.025	.29	.003	.00
Npa	.011	.06	.001	.00
Se	.064	1.37	-.017	.13
Anx	-.022	.23	-.025	.35
Soc	.104	4.82***	.123	8.77***
Bi	.269	28.40***	.350	42.56***
Acad	-.085	3.62***	-.005	.02
Hb	-.034	.65	-.010	.05
Parsmok	.007	.03	.107	7.31***
Paratt	.133	8.83***	.044	1.19
Selfsub	.168	9.21***	.046	.95
Grpcig	.196	14.00***	.230	17.57***

***p<.001

Peers

In this section the influence of peer behavior on the subject's substance use will be examined. Students were asked to report how many of their best friends (an upper limit of three was given) used each of the substances (Table 7). Some 38 percent report having one or more cigarette-using friends, 45 percent report having drinking friends, 35 percent have marijuana-using friends, and 11 percent claim to have one or more drug using friends.

Table 7
Number of Substance Using Friends

Substance	Number of using friends 0	1	2	3
Cigarettes	63%	16%	11%	11%
Alcohol	54%	18%	10%	17%
Marijuana	65%	14%	9%	12%
Drugs	90%	7%	2%	2%

Table 8 presents the correlations between students' substance use and use of the substances by their friends. Pearson correlations reveal moderate to high positive relationships between the use of each substance for the subject and the use of these substances by their friendship group (three best friends) ($p<0.001$). The strongest relationships are for each substance category with itself, for example alcohol users claim to have more drinking friends than the other use categories do.

Table 8
Pearson Correlations Between Subjects' and Friends' Substance Use Behaviors

Subject's Use	Use of substance by friends Cig	Alc	Mar	Drug
Cigarettes	.55***	.41***	.48***	.36***
Alcohol	.35***	.62***	.50***	.33***
Marijuana	.40***	.48***	.69***	.44***
Drugs	.20***	.29***	.30***	.57***

*p<.05 **p<.01 ***p<.001

The question, 'How much does your very best friend (of the three friends reported on in the previous question)

smoke?' yielded a very significant positive correlation between subject's own rate of smoking and his best friend's smoking behavior ($r=0.62;p<0.001$).

Table 9 presents a summary of ANOVAs that examine how various levels of substance use relate to the number of friends reported using the same substance. In every case there was a significant difference across levels of use ($p<0.001$) with users consistently having more friends who used the same substance. According to multiple comparisons using the Scheffe test users and experimenters had significatly more friends using the same substance compared to nonusers for every substance (alpha = 0.05). The effects sizes are all quite large.

Table 9
Comparison Across Usage Levels for Number of Same Substance Using Friends (ANOVA)

	User friends (means) across use			
Substance	Nonuser	Experiment	User	F
Cigarettes	0.30	0.50	2.13	322.47***UE
Alcohol	0.27	0.75	2.01	378.41***UE
Marijuana	0.22	0.88	2.18	527.55***UE
Drugs	0.08	0.84	1.91	293.79***UE

*p<.05 **p<.01 ***p<.001
U Users and nonusers differ significantly
E Experimenters and nonusers differ significantly

Parent Modelling

In this section the influence of parental smoking behavior will be examined. Table 7 shows the frequency of

smoking among parents reported by the students.

Table 10
Frequency of Parental Cigarette Use

Usage Pattern	Mother	Father
Never smoked	47%	33%
Quit smoking	22%	23%
Smoker	29%	32%

The rate of reported parental smoking (about 33 percent) approximates the prevalence of smoking in the adult population in the United States. The influence of parental smoking is seen in Table 11. This table shows the frequency of smoking for subjects based on parental smoking patterns. Here we see the highest incidence rate of smoking for boys and girls occurring in homes where both parents smoke (16% and 28% respectively) while the lowest rate is in non-smoking homes (10% and 15%).

Table 11
Percent of Boys and Girls Who Smoke in Relation to Level of Parental Smoking

Parental Smoking	Boys % Smokers	Girls % Smokers
Mother only smokes	14	28
Father only smokes	12	16
Both parents smoke	16	28
Neither one smokes	10	15

But it is possible that other variables than actual parental smoking may influence use, and, of course, that such other variables may also provide the underlying causal basis for the correlation with parental smoking behavior.

Parental attitudes towards the behavior and their level of education, for example, may be important also. Table 12 shows Pearson correlations between subject's cigarette use and these parental characteristics. Parental attitudes towards their children's smoking (lax attitude correlating with higher use) show the highest correlation with use (a moderate relationship). Actual parental smoking has a lower relationship with their childrens' smoking, especially for boys. Parents' level of education has no relationship with cigarette use, except for a very small negative correlations for boys. The only significant difference between the sexes is for the influence of mothers' smoking. For this variable, girls' smoking is significantly more related to mothers' smoking than is boys' smoking ($p<.05$).

Table 12
Pearson Correlations Between Student's Cigarette Cigarette Use and Parental Characteristics

Parent	Boys	Girls
Mother smokes	0.08*	0.22***
Father smokes	0.14***	0.21**
Mother's attitude	0.25***	0.29***
Father's attitude	0.31***	0.29***
Mother's education	-0.04	0.03
Father's education	-0.08*	-0.01

*p<0.5 **p<0.01 **p<0.001

Parenting Styles

Childrens' perceptions of their parents' concern and affection were measured by the Quality of Family Life Scale

(QFL). ANOVAs for differences in QFL across levels of usage for each substance produced no significant F's (Table 13).

Table 13
Comparison Across Usage Levels for Differences in QFL

	QFL means by user category			
Substances	Nonuser	Experiment	User	F
Cigarettes	3.00	2.98	2.98	0.02
Alcohol	3.06	2.98	2.92	1.94
Marijuana	3.03	2.95	2.94	0.93
Drugs	3.00	2.84	2.78	1.23

Personality

In this next section the role of the key personality variables will be examined in relation to the subject's substance use. Table 14 shows the correlations between these variables. All of the variables are significantly related ($p<0.001$) with anxiety (ANX) and self-esteem (SE), although the correlations are small with the exception of anxiety (ANX) and self-esteem (SE) ($r= -0.41; p<0.001$). Table 15 shows the correlations between the personality variables and use of the substances. Need for peer approval (NPA) is significantly related to more of the substance use categories (cigarettes, alcohol, and marijuana) as compared to anxiety (ANX) and self-esteem (SE), although all of the correlations are very small.

Table 14
Product-Moment Correlations Among The Primary Personality Variables

	Npa	Anx	Se
Npa	1.00	0.20***	-0.17***
Anx		1.00	-0.41***
Se			1.00

***p<0.001

Table 15
Product-Moment Correlations Between the Key Personality Variables and the Substance Use Measures

	Npa	Anx	Se
Cigarettes	0.10***	-0.01	0.00
Alcohol	0.09***	-0.05*	-0.01
Marijuana	0.06*	-0.01	-0.02
Drugs	0.02	0.02	-0.07**

*p<0.05 **p<0.01 ***p<0.001

Tables 16 to 18 report ANOVAs for the three variables across usage levels for the four substances. Self-esteem (Table 16) shows only one significant relationship between the three usage levels of the Drug category ($p<0.01$), although users and nonusers are not significantly different.

Table 16
Examination of Self-Esteem (SE) Differences Across Levels of the Substance Use Categories (ANOVA)

	SE means across use categories			
Substance	Nonuser	Experiment	User	F
Cigarette	2.81	2.75	2.82	0.61
Alcohol	2.78	2.79	2.79	0.02
Marijuana	2.80	2.77	2.72	0.70
Drug	2.81	2.46	2.59	5.00**E

**p<0.01
E Experimenters and nonusers differ significantly,

Table 17 shows significant differences in need for peer approval (NPA) across levels of cigarettes use ($p<0.001$) and alcohol use ($p<0.01$), although the effect sizes are small (approximately .10). Multiple comparisons, using the Scheffe test, found cigarette users to be higher in need for peer approval, and both users and experimenters of alcohol higher in need for approval (alpha = 0.05).

Table 17
Examination of Need for Peer Approval (NPA) Differences Across Levels of the Substance Use Categories (ANOVA)

	NPA means across use categories			
Substance	Nonuser	Experiment	User	F
Cigarette	1.91	1.96	2.15	7.25***U
Alcohol	1.89	2.02	2.05	6.20**OE
Marijuana	1.94	1.99	2.05	2.22
Drug	1.96	1.96	2.17	0.99

**p<0.01 ***p<0.001
U Users and nonusers differ significantly
E Experimenters and nonusers differ significantly
O Users differ significantly from nonusers only

Finally, for anxiety (ANX), only one significant relationship appears for alcohol ($p<0.05$), and multiple comparison analysis using the Scheffe test revealed no significantly different means at the .05 level or better.

Table 18
Examination of Anxiety (ANX) Differences Across Across Levels of Substance Use (ANOVA)

	ANX means across use categories			
Substance	Nonuser	Experiment	User	F
Cigarette	1.88	1.88	1.82	0.37
Alcohol	1.93	1.83	1.81	3.23*N
Marijuana	1.89	1.79	1.85	1.37
Drug	1.96	1.96	2.17	0.99

*p<0.05
N No two groups differ significantly

Rebellion

In the initial theoretical background to this study the proposal was advanced that youth who use drugs may be more rebellious or oriented to the youth culture. We now examine seven variables expected to tap orientation to the youth culture (Table 19). Academic orientation shows moderate negative correlations with the use of all substances. Sports has only one very small positive correlation ($r=0.09$) with alcohol. Religion is negatively related to use of all substances except the drug category, but the size of these relationships is also small. Sociability (SOC), substance use by self (SELFSUB), and substance and cigarette use by peer group (GRPSUB and GRPCIG) all have fairly sizeable

correlations with cigarettes, alcohol, and marijuana (ranging from .30 to .74); the relationships of these variables to drug use are somewhat smaller.

Table 19
Product-Moment Correlations Between Substance Use and Several Achievement/Social Orientation Variables

	Cigarette	Alcohol	Marijuana	Drugs
Acad	-.26***	-.32***	-.25***	-.17***
Sports	-.03	.09***	.03	.01
Religion	-.12***	-.10***	-.13***	-.03
Soc	.30***	.35***	.30***	.13***
Selfsub	.55***	.72***	.74***	.52***
Grpsub	.49***	.63***	.61***	.30***
Grpcig	.52***	.33***	.39***	.23***

*p<0.05 **p<0.001 ***p<0.001

In a parallel analysis, users, experimenters, and nonusers of cigarettes are compared by ANOVA on the seven youth culture variables (Table 20). In all cases except sports, significant differences across levels of use exist at the $p<0.001$ level, and in every case except religion the size of the effect ranges from moderate to quite large. Scheffe tests reveal that for all variables except sports users and experimenters differ significantly from nonusers. For sports, no two means differ significantly from each other at the $p<0.05$ level. Users, and to a lesser extent experimenters, tend to be less academically oriented, less traditionally religious, and more concerned about sociability. The average effect size for these variables is .38 with the achievement variables being in the low range, social variables high, and substance use variables very high.

Table 20
Comparison Across Cigarette Use Categories in Terms of Achievement/Social Orientation Variables

	Use category				
Orientation	Nonuser	Expr	User	F	ES
Acad	3.14	2.80	2.53	41.27***UE	.26
Sports	0.38	0.44	0.33	3.59*N	
Religion	0.51	0.40	0.31	11.11***OE	.14
Soc	2.17	2.50	2.89	63.33***UE	.32
Selfsub	0.19	0.53	1.50	164.44***UE	.48
Grpsub	0.43	0.96	1.98	176.20***UE	.50
Grpcig	0.30	0.50	2.13	322.47***UE	.61

*p<0.05 **p<0.001 ***p<0.001
U Users and nonusers differ significantly
E Experimenters and nonusers differ significantly
O Users differ significantly from nonusers only
N No two groups differ significantly

Similarly sizeable differences appear for the other substances as well. Table 21 shows the F values and significances for ANOVAs comparing the levels of use of alcohol, marijuana, and drugs on the different youth culture variables. For most variables users and experimenters differ significantly from nonusers. As with cigarettes, except for sports and religion the effects are moderate to large for alcohol and marijuana. For drug use, F's are generally smaller in every case. In regard to drugs, unlike marijuana and alcohol, users and experimenters do not differ significantly from each other on any of the variables.

Table 21
F Scores for Youth Culture Variables Across Use Levels of Alcohol, Marijuana, and Drugs

Orientation	Alcohol	Marijuana	Drug
Acad	69.4***UE	35.6***UE	26.5***OE
Sports	9.8***U	4.8**E	0.3
Religion	7.5***U	12.1***U	2.7
Soc	89.3***UE	70.8***OE	12.4***OE
Date	119.6***UE	99.3***UE	35.3***OE
Selfsub	368.1***UE	451.9***UE	228.9***OE
Grpsub	396.9***UE	376.4***UE	74.7***OE
Grpcig	75.7***UE	100.7***UE	32.2***OE

*p<0.05 **p<0.01 ***p<0.001
U Users and nonusers differ significantly
E Experimenters and users differ significantly
O Users differ significantly from nonusers only

Health Belief

This section examines the roles of the subjects' health beliefs regarding cigarette use--both in terms of potential influences and effects. Earlier in Table 5 we saw that cigarette smokers as compared to nonsmokers were significantly less likely to believe that cigarette smoking is injurious to health. Table 22 shows the correlations between the subjects' health beliefs regarding cigarette use and some hypothetically relevant variables. Although there are several significant correlations ($p<0.001$), the relationships are generally small. For boys the use of other substances (SELFSUB) has the highest correlation ($r= -0.23$); for girls behavioral intention has the highest negative relationship ($r= -0.29$). Use of cigarettes and other substances is also highly negatively related to health beliefs

for girls (r= -0.27 for both). Suprisingly cigarette use is not highly related to reduced health beliefs for boys. The difference between the two sexes is significant at $p<0.01$ level. Other significant sex differences exist for the relation of sociability (SOC) and father's education to health beliefs. For girls sociability is significantly more negatively related to perceived health risks associated with smoking ($p<.05$). For boys father's education is more positively related to perceived threats to health ($p<.05$).

Table 22
Pearson Correlations Between Health Beliefs and Theoretically Related Variables

Variables	Boys	Girls
Qfl	.03	.06
Anx	.01	.05
Se	.01	-.00
Npa	-.06	-.13***
Cig	-.09*	-.27***
Selfsub	-.23***	-.27***
Grpsub	-.11**	-.23***
Bi	-.18***	-.29***
Psu	-.02	-.14***
Soc	.00	-.14***
Acad	.19***	.14***
Mother smokes	-.02	-.07*
Father smokes	-.05	-.14***
Mothers' attitude	-.08*	-.03
Fathers' attitude	-.08*	-.05
Mothers' education	.09*	.03
Fathers' education	.15***	.008
Sports	.04	-.00
Religion	-.00	.07*

*p<0.05 **p<0.01 ***p<0.001

Finally, a simultaneous multiple regression analysis was performed using the key variables as predictors of

health beliefs. The results of this analysis are presented in Table 23. The multiple R for boys is .34 and for girls it is .47. The adjusted R square reveals that these variables accounted for only 8 percent of the variance in the males' health beliefs and 18 percent of the females'. A stepwise regression showed that behavioral intention to smoke (BI) was the best predictor (negatively related) for boys, while the subject's use of substances other than cigarettes (SELFSUB) was the best predictor for girls (negatively related).

Table 23
Multiple Regression of Key Variables
Predicting Health Beliefs (HB)

	Male		Female	
Variables	Beta	F	Beta	F
Cig	-.055	.65	-.017	.05
Qfl	.067	1.30	.022	.15
Npa	-.041	.53	-.056	1.09
Se	.059	.75	.036	.33
Anx	.064	1.19	.071	1.68
Soc	.103	2.96***	-.025	.21
Bi	-.137	4.34***	-.171	5.24***
Acad	.101	3.26***	.027	.25
Psu	.042	.57	-.097	3.23***
Grpsub	.098	1.95*	.015	.04
Parsmok	-.087	2.87***	-.029	.30
Paratt	.042	.54	.028	.27
Selfsub	-.162	5.31***	-.262	18.46***
Grpcig	-.036	.29	-.050	.46

*p<.05 ***p<.001

Behavioral Intention

Table 24 presents the relationship of the students behavioral intention to smoke (BI) to other relevant variables. Current substance use and having substance using friends (all four substances in both cases) are strongly related to the intention to use cigarettes one and five years into the future (see CIG through GRPSUB). For these variables, the correlations range from a moderate .36 to a large .62. Parental attitude also has a moderate positive relation with the intention to use cigarettes. There were no significant differences between sexes.

Table 24
Pearson Correlations Between Behavioral Intention To Use Cigarettes (BI) and Relevant Variables

Variables	Boys	Girls
Qfl	-.04	-.03
Npa	.11**	.15***
Se	-.05	-.02
Anx	.04	-.06
Psu	.16***	.14***
Soc	.21***	.28***
Cig	.55***	.62***
Grpcig	.47***	.56***
Bstfriend	.44***	.49***
Selfsub	.42***	.46***
Grpsub	.36***	.54***
Acad	-.31***	-.29***
Hb	-.18***	-.29***
Mother smokes	.10**	.17***
Father smokes	.18***	.18***
Mothers' attitude	.28***	.28***
Fathers' attitude	.35***	.37***
Mothers' education	-.10**	-.01
Fathers' education	-.12**	-.02
Sports	-.01	.00
Religion	-.09**	-.15***

*p<0.05 **p<0.01 ***p<0.001

Finally, a simultaneous multiple regression with all of the key variables as predictors of behavioral intention (BI) (Table 25) yielded a multiple R of .64 for males and .75 for females. These variables accounted for 40 percent of the variance for males and 55 percent of the variance for females by adjusted R square. A stepwise regression of these variables indicated that the student's own use of cigarettes was the best predictor of intention to use cigarettes in the future for both boys and girls.

Table 25
Multiple Regression of Key Variables
Predicting Behavioral Intention

	Male		Female	
Variables	Beta	F	Beta	F
Cig	.282	28.40***	.335	42.56***
Qfl	.051	1.16	.002	.00
Npa	-.050	1.19	.060	2.24**
Se	-.092	2.78**	.015	.11
Anx	.007	.02	.018	.19
Soc	.015	.10	.007	.03
Grpsub	-.104	3.34***	.081	2.12**
Acad	-.132	8.52***	-.089	5.12***
Psu	.137	9.54***	.044	1.23
Hb	-.090	4.34***	-.094	5.24***
Parsmok	.056	1.80*	-.011	.08
Paratt	.097	4.46***	.076	3.66***
Selfsub	.159	7.79***	.156	11.54***
Grpcig	.209	15.29***	.197	13.36***

*p<.05 **p<.001 ***p<.001

Perceived Social Utility

Earlier (Table 5) we saw that cigarette smokers had a significantly higher PSU score ($p<0.001$) than either experimenters or nonusers. Table 26 shows the correlations between PSU and hypothetically relevant variables. Interestingly, the need for peer approval (NPA) reveals the highest correlation for both sexes with the perception of smoking as socially useful ($r= 0.32$; $p<0.001$). No significant differences between the correlations for boys and girls exist.

Table 26
Pearson Correlations Between Perceived Social Utility (PSU) and Relevant Variables

Variables	Boys	Girls
Qfl	-.16***	-.15***
Npa	.32***	.35***
Se	-.15***	-.14***
Anx	.03	.06
Soc	.07*	.11**
Cig	.05	.13***
Grpcig	.12***	.14***
Selfsub	.11**	.03
Grpsub	.09**	.07*
Hb	-.02	-.14***
Bi	.16***	.14***
Acad	-.05	.01
Mother smokes	-.00	-.00
Father smokes	-.00	-.00
Mothers' attitude	.06	-.00
Fathers' attitude	.05	.03
Sports	-.07*	-.05
Religion	-.06	.00

*p<.05 **p<0.01 ***p<0.001

A simultanous multiple regression was also performed using the key variables to predict perceived social utility (PSU) (Table 27) yielding a multiple R of .41 for both boys and girls, corresponding to 14 percent of the variance in perceived social utility being accounted for by these variables. A stepwise regression indicated that need for peer approval was the best predictor of PSU of all the key variables for both sexes. One interesting sex difference is that for boys low self-esteem is positively related to the perceived social utility of cigarette use, whereas for girls no such relationship exists. The opposite is true for quality of family life, in which low QFL is positively related

to PSU for girls, but not for boys.

Table 27
Multiple Regression of Key Variables Predicting Perceived Social Utility of Smoking Cigarettes

	Male		Female	
Variables	Beta	F	Beta	F
Cig	-.057	.76	.032	.18
Qfl	-.066	1.36	-.089	2.36**
Npa	.292	30.93***	.303	32.35***
Se	-.132	3.93***	-.064	1.01
Anx	-.071	1.57	-.012	.04
Soc	.035	.373	.065	1.32
Bi	.196	9.54***	.086	1.23
Acad	.070	1.63	.110	4.06***
Grpsub	.027	.16	-.068	.76
Hb	.039	.57	-.103	3.23***
Parsmok	-.043	.74	-.011	.04
Paratt	-.056	1.04	-.005	.00
Selfsub	-.005	.00	-.089	1.91*
Grpcig	.067	1.06	.086	1.27

*p<.05 **p<.001 ***p<.001

To consolidate the analysis, let us organize the findings according to the three major questions proposed at the outset.

Question I

Question I considers these proposed relationships: parenting of poor quality lowers the child's self-esteem, and increases both the youth's need for peer approval, and perceived social utility of engaging in activities such as cigarette use. The child thus inclined is attracted to substance using youth, and is therefore more likely to use the substances himself.

Table 28 gives the correlations between quality of family life (QFL) and relevant variables. Self-esteem (SE) and perceived social utility (PSU) are the most highly related to QFL. The size of the relationship is large for self-esteem, but small for perceived social utility. Need for peer approval (NPA) also has a small negative relationship with QFL.

Table 28
Pearson Correlations Between QFL and Relevant Variables

	Se	Npa	Psu
Qfl	.45***	-.10***	-.16***

	Grpcig	Cig	Bi
Qfl	-.04	-.00	-.04

*p<0.05 **p<0.01 ***p<0.001

To examine Question I we begin by determining if there is a relationship between the subjects' choices in regard to peer affilation (GRPCIG--affiliation with cigarette smokers in particular) and their tendency to use or intent to use cigarettes. In both cases students who have more cigarette smoking friends are significantly more likely ($p<0.001$) to be cigarette smokers themselves and to intend to continue smoking in the future (Table 29).

Table 29
Differences in Cigarette Variables Across Number of Cigarette Using Friends GRPCIG (ANOVA)

Cigarette Variables	Cigarette use means across GRPCIG 0	1	2	3	F
Cig	0.48	0.88	1.15	1.58	134.34***U
Bi	0.57	1.15	1.58	2.20	146.40***U

***p<0.001
U Users (all levels) differ significantly from nonusers

The next step is to see if the relevant personality and attitudinal variables (perceived social utility--PSU, need for peer approval--NPA, and self-esteem--SE) are affected by the quality of family life (QFL), and if they in turn influence peer group selection. To do this the three variables were used in regressions as outcome variables predicted by QFL. In every case a significant F was obtained, indicating the relationship of these variables to the quality of the student's home life. The size of the relation is large for self-esteem, QFL accounting for 25 percent of the variance. In the others it is very small, however, with QFL accounting for only one and two percent of the variance in NPA and PSU respectively.

Next GRPCIG, the affiliation variable indicating the number of the subject's cigarette smoking friends, was predicted using a hierarchical regression entering PSU, NPA, and SE first, followed by QFL. In this regression need for peer approval (NPA) and perceived social utility (PSU)

proved to be significantly useful predictors of the tendency to affiliate with cigarette smokers ($p<0.01$). Self-esteem (SE) and quality of family life (QFL), however, did not approach significance (Table 30).

Table 30
Prediction of Group Affiliation

Variables	Beta	F
Npa	.056	7.82**
Se	.040	.22
Psu	.103	10.31**
Qfl	-.034	.92

**p<0.01

Question II

Question II examines the strength of the following relationship: students who have lower self-esteem as a result of poor parenting will be less likely to succeed in those areas valued by the adult culture (e.g., academics and sports). Due to this lowered self-esteem they will avoid those achievement areas and opt for behaviors within the youth culture, such as substance use, which provide a means of group identification and peer acceptance.

Earlier (Table 19-21) it was shown that significant differences existed between levels of use for all substances on certain achievement variables. It is interesting to consider whether the lack of achievement orientation is due to affiliation and identification with the youth culture (which may possibly have lower achievement aspirations), or to low

self-efficacy (or self-esteem) leading the students not to participate in those activities, since expected unsuccessful participation would further weaken their self-esteem. One way to test this hypothesis is to look first at the relationship between affiliation with cigarette smoking peers and achievement orientation and then to control for self-esteem. If the differences between user and nonuser achievement disappear when the influence of self-esteem is removed, it would indicate that the low achievement of substance using students may possibly be due to lower self-esteem and not to the influence of lower achievement standards in the the youth culture.

Table 31 gives the correlations between certain achievement/social variables and the child's tendency to affiliate with other substance users (a possible indication of identification and affiliation with the youth culture.)

Table 31
Pearson Correlations Between Having Cigarette Cigarette Smoking Friends (GRPCIG) and Select Achievement Variables

	Se	Acad	Sports	Soc	Date
Grpcig	.00	-.09***	.03	.10***	.12***

*p<0.05 **p<0.01 ***p<0.001

Now let us consider if these variables differ significantly across levels of number of cigarette smoking friends, which will be an index of identification with the youth culture. The raw relationship will first be considered, and

the relationship will then be examined controlling for the influence of self-esteem (self-efficacy) using self-esteem as a covariate in an analysis of covariance. Table 32 shows the differences in various achievement/social behaviors across levels of group cigarette use (GRPCIG). Self-esteem is unrelated to affiliation with smokers just as it was unrelated to cigarette use itself. Sports is similarly unrelated to having or not having cigarette using friends. Thus self-esteem itself and achievement in sports are not associated with the number of cigarette consuming friends. The other three variables, however, are significantly related to number of cigarette using associates: those who seek achievement via academics have fewer associates who smoke, while those who seek social affiliation and who are interested in dating have more smoking friends.

Table 32
Differences in Achievement Across Number of Cigarette Using Friends (GRPCIG) (ANOVA)

	Achievement (means) across GRPCIG				
Variables	0	1	2	3	F
Self-esteem	2.81	2.82	2.66	2.73	1.68
Acad	3.14	2.82	2.75	2.60	20.83***
Sports	.36	.41	.41	.39	.80
Soc	2.26	2.41	2.58	2.81	18.41***
Date	.71	1.03	1.28	1.54	25.89***

*p<0.05 **p<0.01 ***p<0.001

Repeating the same analysis, but now with self-esteem as a covariate, we find almost no difference from the origi-

nal analysis (Table 33). In every case the mean score change is very slight, the direction of the scores is identical, and the significances are identical.

Table 33
Differences in Achievement Across Levels of GRPCIG Controlling for Differences in Self-esteem (ANCOVA)

	Achievement (means) across GRPCIG				
Variables	0	1	2	3	F
Acad	3.16	2.82	2.74	2.62	19.73***
Sports	.37	.42	.41	.40	.77
Soc	2.25	2.43	2.58	2.80	18.98***
Date	.70	1.04	1.29	1.54	25.63***

*p<0.05 **p<0.01 ***p<0.001

Question III

This last section examines the various personality factors that moderate the influence of group substance use on the subject's subsequent involvement in the substance by the subject through social persuasion. It was proposed that these personality variables (both high anxiety--ANX, and need for peer approval--NPA, and low self-esteem--SE) will moderate the effect of the group on the individual and make the individual more susceptible to its influence, so that the youth could either smoke more or less depending on the activity of the group. As a preliminary, however, it will be useful to examine these personality variables to see if their relationship with the outcome variable is linear, as McGuire (1969) has suggested a nonmonotonic relationship

between anxiety and persuasibility.

The three key variables (ANX,NPA, and SE) were examined for non-linear trends in terms of subjects' cigarette use. In every case the variables gave no indication of signficant nonlinear trends. As has been shown earlier, need for peer approval (NPA) is the only one of the three variables that relates significantly with cigarettte use. The trend analysis did show a significant unweighted linear trend term (p=0.02) for this variable, but no significant linear terms for SE or ANX.

Now let us examine the data to see if there are any significant interactions between these personality variables and group cigarette use. Examining all three personality variables we find significant main effects for group influence (GRPCIG), no main effects for personality contributions, and no significant interactions (Tables 34-36).

Table 34
A Test for the Potential Interactive Influence of NPA and Friends' Cigarette Use on Subject's Cigarette Use (ANOVA)

Source	df	MS	F
Grpcig	3	46.60	125.999***
Npa	4	0.78	2.11
Grpcig X Npa	11	0.16	0.44
Within Ss	1028	0.37	
Total	1046		

***p<0.001

Table 35
A Test for the Potential Interactive Influence of SE and Friends' Cigarette Use on Subject's Cigarette Use (ANOVA)

Source	df	MS	F
Grpcig	3	46.24	125.12***
Se	4	0.17	0.46
Grpcig X Se	12	0.41	1.12
Within Ss	1000	0.37	
Total	1019		

***p<0.001

Table 36
A Test for the Potential Interactive Influence of ANX and Friends' Cigarette Use on Subject's Cigarette Use (ANOVA)

Source	df	MS	F
Grpcig	3	46.69	130.07***
Axx	4	0.35	0.97
Grpcig X Anx	12	0.32	0.89
Within Ss	1002	0.36	
Total	1021		

***p<0.001

DISCUSSION

General Findings

Most of the key variables were significantly related to the use of cigarettes, alcohol, marijuana, and to a lesser degree, drugs. Users were significantly different from both experimenters and nonusers on most variables. Additionally, experimenters also typically proved to be different from nonusers. Thus, as has been found by others (Jessor, 1976; Jessor & Jessor, 1973), students who begin to use substances (the experimenting group) may become more like established users, and less like those who continue to abstain. So although only a minority of students consider themselves to be regular users of any substance, a fairly large number of experimenters (especially with cigarettes) are already quite different from nonusers. (Of course, initial differences between these categories of subjects may have led to these differing patterns of substance use.) Thus, a potentially sizeable group of students are at risk of becoming regular users.

Considering the highly social nature of substance use, it is clear that the experimenting group is very much at risk of becoming users, because they are probably more inclined to associate with other substance users and thus via group modelling and group pressure to become more involved in the use of substances. Indeed, experimenters

had significantly more substance using friends than nonusers, and were more interested in social life.

Notable exceptions to the significant results obtained for the key items were the results for self-esteem, anxiety, and the quality of family life. As reported earlier, quality of family life and self-esteem were inconsistently associated with the use of substances, as was self-esteem. As for anxiety there is little evidence about the direct role of this variable in the use of substances, although one study (Wong-McCarthy & Gritz, 1983) reported a possible positive relation between anxiety and increased risk of initiation into cigarette use for young students.

Kandel et al. (1976) have reported that family relations and intrapersonal variables only become significant with serious drugs. For the students in this study quality of family life was not significantly related to the use of any substance. Kandel's sample was of older high school students, however, which might account for her different findings. There was a rather small negative correlation between self-esteem and the use of drugs ($r= -.07; p<0.01$). As very few seventh graders in this sample use drugs, however, this relationship might well increase over the next few years as more students become involved in the use of such substances. The present findings thus suggest that for the average adolescent in this sample the use of cigarettes, alcohol, and marijuana is not a direct result of low self-

esteem, high anxiety, or deficient familial conditions.

Need for peer approval proved to be significantly related to cigarette use, although the relationship was weak. Cigarette smokers appear to have a greater need for peer acceptance than either experimenters or nonusers. This relationship is to be expected: given the social context of substance use, it is not suprising that students who want to be accepted by their peers would want to use substances. Interestingly this variable was only modestly significant for marijuana users and not significant for drug users. Perhaps the latter finding reflects a greater need for autonomy among students who use these substances.

Most strongly associated with cigarette/substance use were the variables concerning use of substances by subjects or subjects' friends (CIG, SELFSUB, GRPCIG, GRPSUB), confirming the social nature of substance use and the tendency of users of any one substance to be involved in the use of other substances as well. This evidence is consistent with the conception of a subculture of youth whose peer affiliations or social networks are at least partly delineated by the use of substances disapproved by the adult community, as Kandel (1978) has suggested.

One of the strongest variables was the attitudinal variable of behavioral intention to smoke. Users have a higher intention than either experimenters or nonusers, and experimenters have a higher intention than nonusers. It

would appear that young smokers (even those who have tried cigarettes only once or twice in their lives--the experimenters) have a strong attitudinal commitment to smoking compared to students who have never smoked at all. The increased intention of these two groups, especially the experimenters, gives warrant to the prevalent suggestion that prevention programs should be initiated before students begin to experiment (e.g. Fodor & Glass, 1971; Irwin et al., 1970) As substance use is highly social, a slight intention could direct youth towards established users and dramatically increase their probability of becoming regular users. It is not suprising, then, that Leventhal and Cleary (1980) reported that students who smoked as few as four cigarettes were very likely to become regular smokers.

General sociability and interest in dating were two other factors positively related to substance use, while academic orientation reduced the likelihood of use. In his analysis of social relations in the school, Newman (1970b) found three groups of students--academics, socialites, and hoods. The academics never used substances, and were generally less social. The socialites used substances secretively and were much interested in social activities. The last group used substances openly and did not associate with the other two groups. The present data partially fit this picture. Academically oriented students do not use substances very frequently. Those students who are less

interested in academic pursuits, and who are more interested in social activities, tend also to be more involved in substance use.

Peers

This study provides substantial support for the importance of peer use and affiliation. A strong relationship existed between the subjects' use of substances and the number of their friends who used the same substance. ANOVAs showed that both smokers and experimenters had more substance using friends than nonsmokers, with users typically having more than either experimenters or nonusers. Once again the experimenters appear to be at high risk. The peer data are particularly relevant as suggesting that the experimenters are heading in the critical direction of greater social affiliation with other users. As Jessor et al. (1973) have found,

> Once use is begun, for whatever reason or under whatever situational vagaries, a process of peer socialization may well get started which influences the new user in the direction of other users and away from nonusers on a variety of personality, social, and behavioral attributes.

Thus considering the social nature of substance use and power of peer influence, the experimenters are indeed at a precarious juncture.

Parents

About 33 percent of the students reported having a parent who smoked. Similar to results reported in a national survey (NIE, 1979), both boys and girs were more likely to smoke if they came from homes in which both parents smoked, and least likely if they came from homes in which neither parent smoked. Mothers' smoking tended to be somewhat more influential than fathers, especially for girls.

Although parental smoking was found to be significantly related to youths' smoking, the role of parental attitudes appeared to be even more important. It is quite conceivable that parents could smoke yet feel the behavior was inappropriate for their children or anyone else. Smoking parents could openly convey their own dissatisfaction with their smoking habits and advise their children not to make a similar mistake. But parents who have a lax attitude toward their childrens' smoking (as reported by the child) were more likely to have children who smoked. So parental attitudes regarding their childrens' behaviors obviously have at least some influence on this age group. Finally, the level of parental education does not play a significant role in the smoking behavior of the youth in this group, although a very small negative relationship existed for boys with fathers' educational level.

Parenting Styles

For this sample there was no significant relationship between reported quality of family life and the use of any substance. Quality of family life, as measured by the QFL scale used with the present sample, does not relate directly to substance use.

Personality

The key personality variables of anxiety, self-esteem, and need for peer approval were all significantly intercorrelated. The largest relationship between the variables was between self-esteem and anxiety ($r = -.41$; $p<0.001$). Only need for peer approval produced signicant differences between users and nonusers. For this variable only the cigarette smokers differed from nonusers, while for alcohol, both users and experimenters differed from nonusers. Both cigarette and alcohol use are related to a higher need for peer approval. For marijuana and drugs no significant differences were evident for this variable. The other two variables, anxiety and self-esteem, did not differ between users, experimenters, and nonusers. Cigarette smokers in this sample thus seem to have a higher need for peer approval than nonsmokers, but do not differ from them significantly in anxiety or self-esteem.

As mentioned at the outset, considerable evidence indicates that substance using youth are more rebellious or less

traditional than nonusing youth, and have a lower achievement record (e.g., Block, 1975; Jessor, 1979). This sample upheld these findings. Students who smoked cigarettes were significantly less interested in academics, less traditionally religious, and more interested in social life and dating. They also had significantly more friends who smoked cigarettes, and who used other substances, and were more likely to be users of other substances themselves. In addition, in every case, cigarette users and experimenters were significantly different from nonusers on the relevant variables. The same relationships also generally held up for users of alcohol, marijuana, and drugs, although once again the effects for drug users were typically much smaller. So the evidence suggests that substance users represent a somewhat more rebellious or non-traditional group (specifically in terms of engaging in socially proscribed substance use), who are also lower academic achievers, and more socially oriented.

Health Belief

Smokers had a significantly lower belief in the deleterious effects of smoking compared to both experimenters and nonsmokers. Health beliefs is one of the few areas in which experimenters had not yet differentiated from nonsmokers. It is possible that the experimenter group, which is still like the nonusers in this regard, could benefit from prevention programs that focused on health beliefs.

It might not prevent them from starting, but it could possibly slow the process.

None of the variables in the survey correlated very highly with health beliefs, although there were a few moderate correlations (in the .23 to .29 range). Most of the correlations, except academic orientation for both sexes, and parental education for boys, were negative. Additionally, these negative relationships were consistently larger for girls than for boys. The only significant sex differences were with subject's cigarette use, social orientation, and fathers' education. The sex difference regarding cigarette use (girls' smoking negatively correlated with health beliefs, while boys' was not) was somewhat puzzling. Perhaps the females had a greater need to defend their smoking as such behaviors are typically more likely to be proscribed for females than for males. Thus they may be even more inclined to deny the health risks. The largest relationships (again negative) between health beliefs and the key variables were with substance use, attitudes related to use, or affiliation with users.

Regression analysis showed behavioral intention to be the best predictor of health beliefs for boys; i.e., the more they intended to continue to smoke the less they felt it would be bad for their health, which is an interesting interplay of two important attitudinal variables. For girls the best predictor was friends' use of substances.

Behavioral Intention

Current use of cigarettes and other substances, and having friends with similar use-behaviors, were very highly related to the intention to smoke cigarettes. According to stepwise regression the student's own use of cigarettes was the best predictor of intention. Need for peer approval (a small positive correlation) and sociability (a moderate positive correlation) were also associated with intention. Traditional religious and academic orientations, especially the latter, were similarly related to a lower intention to use. Here we see the role of adhering to more conventional norms as buffering some influence, possibly social, which reduces the probability of substance use for these youth.

Perceived Social Utility

Cigarette smokers see smoking as more socially attractive than do nonsmokers or experimenters, although the effect size is small. The correlation between cigarette smoking and perceived social utility is significant only for females, however, perhaps because cigarette smoking implies social status or a response to social pressure more for girls than for boys. By multiple regression, need for peer approval was the best predictor of PSU for both sexes Apparently something about needing peer acceptance makes the student see cigarettes as socially useful. As substance use is a common behavior among adolescents, and a potential means of identification, affiliation, and acceptance this is

not suprising.

Question I

It will be recalled that Question I examined the relationship between family life, several personality variables, and group affiliation. The hypothetical relationship posed was that poor family life leads to low self-esteem, high need for peer approval, and a high perceived social utility of using substances. These personality/attitudinal variables were seen as seen to lead in turn to affiliation with substance using youth, with a concomitant increase in risk for substance use. The analysis of the present data showed low quality of family life to be related to low self-esteem, high need for peer approval, and a higher perceived social utility as hypothesized. The relationships were quite small for need for peer approval and perceived social utility, however.

Another regression analysis found need for peer approval and perceived social utility to be significantly related to affiliation with cigarette smoking peers, while self-esteem and quality of family life were not. Finally, the relation between subject smoking and having smoking friends was found to be quite substantial.

Thus, some of the relationships observed fit the pattern originally predicted. Self-esteem is quite strongly related to antecedent family life as Coopersmith (1967) has

reported. Need for peer approval and perceived social utility were only weakly related. However, self-esteem was not related to having cigarette using friends, in contrast with the positive relationships for need for peer approval and perceived social utility.

As the data is cross-sectional no causal conclusions can be drawn from these results. Even so, however, the obtained correlations give little support for the relevance of the family life variable to intermediary personality variables leading to substance-using group affiliations. Longitudinal data are required to settle this issue.

Question II

This question considered the relationship between quality of family life, self-esteem, traditional achievement, and social orientation. Students from deficient homes were expected to have lower self-esteem, which would in turn be related to their reduced achievement orientation. They would thus withdraw from traditional avenues of achievement and choose instead affiliation with substance using peers and alternate methods of recognition such as drug use. A strong relationship was found between low self-esteem and poor quality of family life. As for the relation between having substance using friends, and achievement, and social interests, it was found that students who had more cigarette using friends (GRPCIG) were less interested in traditional academic achievement. There was no relationship with

participation in sports, however. Such students were also more interested in socializing (SOC) and in dating (DAT).

Low self-esteem, it was suggested, might lower the youths' sense of self-efficacy and thus lead to selection of a lower achieving group as friends. But controlling for self-esteem did not alter the relations obtained between the relevant variables and affiliation with substance using youth. So other factors than differences in self-esteem must be involved in the youths' associating with substance-using groups. Perhaps the youth in the substance-using groups are as capable as other students to achieve in academics and other conventional areas, but because of differing values in their particular social groups they choose not to achieve in those areas and instead focus on those behaviors most relevant to their peer group.

Question III

Question III suggested that youth who are high in anxiety and need for peer approval, and low in self-esteem would be more subject to persuasive group influences toward substance use. Therefore it was hypothesized that these youth would be more like the group with which they affiliated in terms of cigarette use, either higher or lower depending on the normative use levels of their peer group. The findings, however, showed no significant interactions between cigarette use levels by friends and these three personality variables. Perhaps the subjects' peers do not try

to persuade new recruits to use the problematic substances, but the youth rather self-select themselves into the groups with the intention of using the substances, or of at least being open to the possibility. In this interpretation, they are internally motivated and the influence of external pressure is less relevant.

GENERAL CONCLUSION

Taking the findings of this study in the broadest perspective it appears, as Kandel (1974) has stated, that, "Peer influence may not be an important variable, it may be the variable." (p.208) For the present sample, a powerful triad of influences emerges related to cigarette use: the subject's own use of substances (other than cigarettes), the subject's behavioral intention to continue to smoke cigarettes, and the subject's association with other youth who similarly use cigarettes and other substances. Considering the nature of these powerful influences, which seem to be largely social, it is no wonder that prevention programs that focus on the social aspects of cigarette use (e.g., McAlister et al., 1979a;) meet with success in the classroom. Other efforts that target health beliefs, or some other attitude (except behavioral intention perhaps) seem fated to show less impact. The socially oriented programs seem most justified, since students who appear most susceptible to peer influence to become smokers are probably also most open to influence by a peer-taught programs or one otherwise socially based.

The present data suggest a three-part typology with respect to cigarette use by adolescents. A first subset appear to be more traditional in their behavior and attitudes. They place more value on academics and religiosity,

and they are less interested in dating and socializing. The opposite end of the continuum is the user group, who use various problematic substances with some degree of regularity. Unlike the nonusers they are less interested in academics and religion, more interested in social life, and dating, have more substance using friends, and use more of the various substances themselves. These students express a strong behavioral intention to smoke. The final group is the experimenting students--those who have tried cigarettes or other substances once or twice. On most central variables, these students are significantly different from the nonusers. Like the students who consider themselves regular users, they tend to be less academically oriented, less traditionally religious, and more interested in dating and socializing. They also have more substance using friends, and are more likely to have tried other substances themselves.

What is the implication of this pattern? Although in the seventh-grade most students are nonusers there are many potential future users, taking users and experimenters together. Since the experimenters already differ significantly from the nonusers on most important variables, it seems likely that, given conducive social environments, they too will begin to use cigarettes and other substances more regularly. Once the social networks, support systems, and identities of use are established it may become more diffi-

cult to reduce or stop the behavior. Prevention programs might therefore focus on younger populations and intervene before use and social supports for use are established.

Other variables investigated in this study were less powerful. Factors that might have been expected to be deterrents, e.g., involvement in sports, were not. Perhaps, as would be sensible to conclude, sports for adolescents has less to do with staying healthy than it does with status and group identification. If that were indeed the case then it would be inappropriate to expect students involved in sports to have any less interest in substance use. This would be especially true if their involvement in sports were motivated by social interests much like substance use is.

Health beliefs, on the other hand, seemed to provide a buffer against substance use, or to be associated with some quality that was opposed to use, but the relationship was weak. Academic orientation was also somehow protective against the tendency to use or experiment with various substances.

The present results gave little support, however, to the idea of a prevention program focusing on either of these two factors (health beliefs and especially academic orientation). Considering the rather small role that health beliefs play, and the fact that they may be related to more general conservatism, non-social tendencies, or some other pervasive underlying individual characteristic, it is

unlikely that the mere communication of health information would have much impact. As for academic orientation, it seems unlikely, considering the general lack of success of schools in this regard, that the direct attempt to instill academic interest is a practical goal for programs aimed at reducing substance use.

The personality variables tapped in the present study controlled little variance. One possibility is that the real influence of these variables in the etiology of substance use may be masked by the students' self-protectiveness. Students may be unwilling to admit that they are low in self-esteem or high in anxiety. Future researchers might find it useful to obtain correlary evidence from peer, teacher, and parental reports of the youths' levels of self-esteem and anxiety to complement the students' self-reported use of the various substances.

The role of the quality of home life also appears to be limited in terms of explaining the use of substances for this sample. The question remains, however, as to why some students need to be unconventional and why some have a greater need for peer approval. Otherwise, more proximal parental influences, i.e., parental smoking behavior and attitudes about their childrens' smoking, did play a role in this sample. Parental attitudes generally had a more significant effect than actual parental smoking. Smoking prevention programs for youth might well provide supplementary

programs focused on cessation of parental smoking and education regarding the role of parental attitudes in the prevention of substance use by their children. Once again, however, considering the small to moderate role of these more distal variables a focus on the more proximal social areas of peer and self substance use may be more cost-effective.

Two of the attitudinal variables, need for peer aproval and perceived social utility, were also related to affiliation with peers who used substances, although the relationship was rather weak. Thus, students who use substances (at least cigarettes and alcohol) seem to have a greater need for peer acceptance. Considering the role of substance use in the youth culture, it is not suprising that they would also see greater social utility in cigarette smoking. What remains to be determined, however, is why these students have an increased need for peer approval, as the family appeared to play a small part, as far as the present data indicate.

Finally, students who are inclined to use substances may be categorized as more unconventional. Whether this is viewed as bad or not is a matter of personal and social opinion. It is quite feasible that this "rebellious" behavior is indeed simply a healthy, developmental process and that the use of various substances is not deviant or abnormal. And even if something about their home life did drive students to seek peer support, rebellion and peer

orientation would not necessarily be unhealthy, or pathological. The problem with substance use as an expression of these "rebellious" tendencies, however, is the potentially deleterious effects to health, the increased probability of becoming a long-term regular user, and the cost to other possibly more constructive avenues of expression potentially more useful to the individual and to society.

Since one can hardly expect to change the rebellious tendencies of youth--even were it desirable to do so--it makes sense to invest in finding positive ways to use the existing peer/social forces within and outside the school. Greater social forces, such as advertising, could be used more productively to show the youth culture the value of healthier behaviors. In addition, if the adult culture could set positive examples in their own substance use, the effect on youth might be beneficial. Considering the value placed on substance consumption in the adult population, however, this solution is unlikely.

Given all of these considerations, the pragmatic approach in cigarette/substance-use prevention programs for youth would not fight these youthful tendencies but rather join them. Prevention efforts should direct youthful curiousity and need for independence or "rebellion" in directions that are more useful to the youth and to society in the long run. Given the strength of peer influences for this age group it makes sense to use the existing social

forces that move youth in their quest for mastery, self-understanding, and social acceptance.

REFERENCES

American Cancer Society (ACS). Dangers of smoking: Benefits of quitting. New York: American Cancer Society, 1980.

Asch, S.E. Studies of independence and and conformity: I. A minority of one against a unanimous majority. Psychological Monographs, 1956, 70(9), 1-70.

Bandura, A. Self-efficacy: Toward a unifying theory of behavioral change. Psychological Review, 1977a, 84, 191-215.

Bandura, A. Social learning theory. Englewood Cliffs, N.J.: Prentice-Hall, 1977b.

Banks, M.H., Bewley, B.R., Bland, J.M., Dean, J.R., & Possard, V. Long-term study of smoking by secondary school children. Archives of Disease in Childhood, 1978, 53, 12-19.

Bernstein, D.A. Modification of smoking behavior: An evaluative review. Psychological Bulletin, 1969, 71, 418-440.

Berstein, D.A., & McAlister, A. The modification of smoking behavior: Progress and problems. Addictive Behaviors, 1976, 1, 89-102.

Bewley, B.R., & Bland, J.M. Academic performance and social factors related to cigarette smoking by schoolchildren. British Journal of Preventive and Social Medicine, 1977, 31, 18-24.

Block, J.R. Behavioral and demographic correlates of drug use among students in grades 7-12. In D.J. Lettieri (Ed.), Predicting adolescent drug abuse: A review of issues, methods, and correlates. Washington, D.C.: U.S. Government Printing Office, 1975.

Blum, R., & Associates. Students and drugs: College and high school observations. San Francisco: Jossey-Bass, 1969.

Botvin, G.J., Eng, A., & Williams, C.L. Preventing the onset of cigarette smoking through life skills training. Preventive Medicine, 1980, 9, 135-143.

Braucht, G.N., Brakarsh, D., Follingstad, D., & Berry, K.L. Deviant drug use in adolescence: a review of psychosocial correlates. Psychological Bulletin, 1973, 79(2), 92-106.

Brook, S.J., Lukoff, I.F., & Whiteman, M. Peer, family, and personality domains as related to adolescents' drug

behavior. Psychological Reports, 1977, 41, 1095-1102.

Brook, S.J., Scovell-Gordon, A., & Brook, D.W. Perceived paternal relationships, adolescent personality, and female marijuana use. The Journal of Psychology, 1980, 105, 277-285.

Brook, J.S. Whiteman, M., Scovell Gordon, & Brook, D.W. Fathers and sons: Their relationship and personality characteristics associated with the son's smoking behavior. The Journal of Genetic Psychology, 1983, 142, 271-281.

Castenada, A., McCandless, B.R., & Palermo, D.C. The children's form of the manifest anxiety scale. Child Development, 1956, 27, 317-326.

Chassin, L., Presson, C.C., Bensenberg, M., Olshavsky, R.W., & Sherman, S.J. Predicting adolescents' intentions to smoke cigarettes. Journal of Health and Social Behavior, 1981, 22, 445-455.

Chein, I., Gerard, D.L., Lee, R.S., & Rosenfeld, E. The road to narcotics, delinquency, and social policy. New York: Basic Books, 1964.

Chen, T.T., & Thompson, L. A study of smoking behavior and smoking education at junior high level. Health Education, 1980, 11, 7-10.

Cohen, J. Statistical Power Analysis for the Behavioral Sciences. New York: Academic Press, 1977.

Coleman, J.S. Adolescent society. New York: The Free Press of Glencoe, 1961.

Coopersmith, S. The antecedents of self-esteem. San Francisco: W.H. Freeman and Co., 1967.

Crandall, V.C., & Crandall, V.J. A children's social desirability questionnaire. Journal of Consulting Psychology, 1965, 29(1), 27-36.

Cronbach, L.J. Coefficient alpha and the internal structure of tests. Psychometrica, 1951, 16, 297-334.

Crowne, D.P., & Marlowe, D. The approval motive: Studies in evaluative dependence. New York: John Wiley and Sons, 1964.

Dull, R.T., & Williams, F.P. Marijuana, alcohol and tobacco: Reassessment of a presumed relationship. Journal of Drug Education, 1981, 11(2), 129-139.

Duryea, P.E., Kreuter, M.W., & Braza, G.F. Cognitive perceptions of importance in students' decisions about smoking. Health Education, 1981, 12, 4-8.

Evans, R.I., Hansen, W.B., & Mittelmark, M.B. Increasing the validity of self-reports of behavior in a smoking in children investigation. Journal of Applied Psychology, 1977, 62, 521-523.

Evans, R.I., Rozelle, R.M., Mittelmark, M.B., Hansen, W.B., Bane, A.L., & Havis, J. Deterring the onset of smoking in children: knowledge of immediate physiological effects and coping with peer presure, media pressure, and parent modeling. Journal of Applied Social Psychology, 1978, 8, 126-135.

Faunce, W.A. School achievement, social status, and self-esteem. Social Psychology Quarterly, 1984, 47(1), 3-14.

Fodor, J.T., & Glass, L.H. Curriculum development and implementation of smoking research--a longitudinal study. Journal of School Health, 1971, 41, 199-202.

Fox, R.C., & Bauer, R.A. Self-confidence and persuasibility in women. In R.L. Rosnow & E.J. Robinson (Eds.), Experiments in persuasion. New York: Academic Press, 1967.

Friedman, H. Magnitude of experimental effect and a table for its rapid estiimation. Psychological Bulletin, 1968, 70(4) 245-251.

Gardner, H. Developmental psychology. Boston: Little, Brown and Company, 1982.

Gordon, L.V. Value correlates of student attitudes on social issues: a multination study. Journal of Applied Psychology, 1972, 56, 305-311.

Gorsuch, R.L., & Butler, M.C. Initial drug abuse: a review of predisposing social psychology factors. Psychological Bulletin, 1976, 83(1), 120-137.

Hollingshead, A.B., & Redlich, F.C. Social class and mental illness. New York: John Wiley, 1958.

Huba, G., Wingard, J., & Bentler, P. Beginning adolescent drug use and peer and adult interaction patterns. Journal of Consulting and Clinical Psychology, 1979, 47(2), 265-276.

Huba, G.J. Wingard, J.A., & Bentler, P.M. Longitudinal analysis of the role of peer support, adult models, and peer subcultures in beginning adolescent substance use: an

application of setwise canonical correlation methods. Multivariate Behavioral Research, 1980, 15, 259-279.

Hull, C.H., & Nie, N.H. SPSS update. New York: McGraw-Hill, 1979.

Hundleby, J.D., Carpenter, R.A., Ross, R.A., & Mercer, G.W. Adolescent drug use and other behaviors. Journal of Child Psychology and Psychiatry, 1982, 23, 661-668.

Hyman, H.H., & Sheatsley, P.B. Some reasons why information campaigns fail. In W. Schramm & D.F. Roberts (Eds.), The process and effects of mass communication. Urbana, Illinois: University of Illinois Press, 1971.

Irwin, R.P., Creswell, W.H., Jr., & Stauffer, D.J. The Effect of the teacher and three different classroom approaches on seventh grade students' knowledge, attitudes, and beliefs about smoking. Journal of School Health, 1970, 40, 355-359.

Janis, I.L. Personality correlates of susceptibility to persuasion. Journal of Personality, 1954, 22, 504-518.

Jarvik, M.E., Cullen, J.W., Gritz, E.R., Vogt, T.M., & West, L.J. (Eds.) Research on smoking behavior. Washington, D.C.: U.S. Department of Health, Education, and Welfare (NIDA Research Monograph 17), 1977.

Jessor, R. Predicting time of onset of marijuana use: a developmental study of high school youth. Journal of Consulting and Clinical Psychology, 1976, 44(1), 125-134.

Jessor, R. Marihuana: A review of recent psychosocial research. In R.I. Dupont et al. (Eds.), Handbook on Drug Abuse. Washington, D.C.: U.S. Department of Health, Education, and Welfare, 1979.

Jessor, R., Collins, M., & Jessor, S. On becoming a drinker: social psychological aspects of an adolescent transition. In R. E. Seixas, (Ed.), Nature and Nurture in Alcoholism. New York: Annals of N.Y. Academy of Sciences, 1972, 197, 199-213.

Jessor, R., Graves, T.O., Hanson, R.C., & Jessor, S.L. Society, personality, and deviant behavior: A study of tri-ethnic community. New York: Holt-Rinehart, and Winston, 1968.

Jessor, R., & Jessor, S.L. Adolescent development and the onset of drinking: A longitudinal study. Journal of Studies on Alcohol, 1975, 36, 27-51.

Jessor, R. & Jessor, S. Problem Behavior and Psychosocial Development: A longitudinal study of youth. New York: Academic Press, 1977.

Jessor, R., & Jessor, S.L. Theory testing in longitudinal research on marijuana use. In D.B. Kandel (Ed.), Longitudinal research on drug use: Empirical findings and methodological issues. Washington, D.C.: Hemisphere, 1978.

Jessor, R., Jessor, S.L., & Finney, J. A social psychology of marijuana use: Longitudinal studies of high school and college yoth. Journal of Personality and Social Psychology, 1973, 26, 1-15.

Johnson, B.D. Marijuana users and drug subcultures. New York: Wiley, 1973.

Johnson, O.G., & Bommarito, J.W. Tests and measurements in child development: A handbook. San Francisco: Jossey-Bass, 1971.

Johnston, L.D., Bachman, J.G., & O'Malley, P.M. Highlights from student drug use in America 1975-1980. U.S. Department of Health and Human Services (DHHS number ADM 81-1066), 1980.

Johnston, L.D., Bachman, J.G., & O'Malley, P.M. Highlights from student drug use in American 1975-1981. U.S. Department of Health and Human Services (DHHS number ADM 82-1208), 1981.

Jones, E.E., & Sigall, H. The bogus pipeline: A new paradigm for measuring affect and attitude. Psychological Bulletin, 1971, 76, 349-364.

Josephson, E. Indicators of Change in Adolescent Marijuana Use. In E. Josephson & E. Carroll (Eds.), The Epidemiology of Drug Abuse. Washington, D.C.: Winston, 1974.

Kandel, D.B. Adolescent marijuana use: Role of parents and peers. Science, 1973, 181, 1067-1070.

Kandel, D.B. Inter- and Intra-generational influences on adolescent marijuana use. Journal of Social Issues, 1974a, 30(2), 107-135.

Kandel, D.B. Interpersonal influences on adolescent illegal drug use. In E. Josephson & E. Carroll, (Eds.) Drug use: Epidemiological and sociological approaches. Washington, D.C.: Hemisphere, 1974b.

Kandel, D. Stages in adolescent involvemet in drug use. Science, 1975, 190, 912-914.

Kandel, D. On variations in adolescent subcultures. Youth and Society, 1978, 9, 373-384.

Kandel, D.B., Kessler, R.C., & Margulies, R.Z. Antecedents of adolescent initiation into stages of drug use: A developmental analysis. In D.B. Kandel (Ed.), Longitudinal research on drug use. Washington, D.C.: Hemisphere, 1978.

Kandel, D.B, Treiman, D., Faust, R., & Single, E. Adolescent involvement in legal and illegal drug use: A multiple classification analysis. Social Forces, 1976, 55, 438-458.

Kohn, P.M., & Annis, H.M. Personality and social factors in adolescent marijuana use: a path analytic study. Journal of Consulting and Clinical Psychology, 1978, 46, 366-367.

Krosnick, J.A., & Judd, C.M. Transitions in social influences at adolescence: who induces cigarette smoking? Developmental Psychology, 1982, 18(3), 359-368.

Laoye, J.A., Creswell, W.H., Jr., & Stone, D.B. A cohort study of 1,205 secondary school smokers. Journal of School Health, 1972, 42, 47-52.

Lehmann, S. Personality and compliance: A study of anxiety and self-esteem in opinion and behavior change. Journal of Personality and Social Psychology, 1970, 15, 76-86.

Leventhal, H. Findings and theory in the study of fear communications. In L. Berkowitz (Ed.), Advances in experimental social psychology (Vol. 5). New York: Academic Press, 1970.

Leventhal, H., & Cleary, P.D. The smoking problem: A review of the research and theory in behavior risk modification. Psychological Bulletin, 1980, 88, 370-405.

Maccoby, E.E. Social development--psychological growth and the parent-child relationship. New York: Harcourt Brace Jovanovich, 1980.

Maddox, G.L. Drinking prior to college. In G.L. Maddox (Ed.), The domesticated drug: Drinking among collegians. New Haven: College and University Press, 1970.

McAlister, A.L., Perry, C., & Maccoby, N. Adolescent smoking: onset and prevention. Pediatrics, 1979a, 63, 650-658.

McAlister, A.L., Milburn, M., & Krosnick, J.A. Toward a model to explain the onset of smoking. a paper presented

at the invited conference on the social psychology of smoking prevention, Stanford University, Stanford, California, 1979b.

McGlothlin, W.H. Behavioral aspects of drug use. In D.J. Lettieri (Ed.), Predicting adolescent drug abuse: A review of issues, methods, and correlates. Washington, D.C.: U.S. Government Printing Office, 1975.

McGuire, W.J. The nature of attitudes and attitude change. In G. Lindzey & E. Aronson (Eds.), The handbook of social psychology (Vol. 3). Reading, Massachusets: Addison-Wesley, 1969.

McGuire, W.J. Persuasion, Resistance, and Attitude Change. In I.d.S. Pool (Ed.), Handbook of communication. Chicago: Rand McNally, 1973.

McRae, C.F., & Nelson, D.M. Youth to youth communication on smoking and health. Journal of School Health, 1971, 41, 445-447.

Mercer, G., & Kohn, P. Child rearing factors, authoritarianism, drug use attitudes, and adolescent drug use: a model. The Journal of Genetic Pschology, 1980, 136, 159-171.

The National Institute of Education (NIE). Teenage smoking: Immediate and long term patterns. Washington, D.C.: U.S. Government Printing Office, 1979.

Newman, I.M. Adolescent cigarette smoking as compensatory behavior. Journal of School Health, 1970a, 40, 316-320.

Newman, I.M. Status configurations and cigarette smoking in junior high school. Journal of School Health, 1970b, 40, 28-31.

Nie, N.H., Hull, C.H., Jenkins, J.G., Steinbrenner, K., & Bent, D.H. Statistical package for the social sciences. (Chapter 22) New York: McGraw-Hill, 1975.

Parry, H.J. Sample surveys of drug abuse. In R.I. Dupont et al., (Eds.) Handbook on drug abuse. U.S. Department of Health, Education, and Welfare, 1979.

Perry, C.L. Tobacco use among adolescents: promising trends in prevention and cessation strategies. In T. Coates et al. (Eds.) Adolescent health: Crossing the barriers. New York: Academic Press, 1982.

Rabinowitz, H.S. & Zimmerli, W.H. Effects of a health education program on junior high school students' knowledge,

attitudes, and behavior concerning tobacco use. Journal of School Health, 1974, 44, 324-330.

Risk and Youth Project. Questionnaire developed for the Risk and Youth: Smoking Project. Lawrence Hall of Science, University of California Berkeley, 1982.

Ritter, D.R. Parental awareness: knowledge and attitudes toward drug use. Journal of Drug Education, 1972, 2, 311-317.

Robins, L.N. Alcoholism and Labelling Theory. In D. Mechanic, (Ed.) Readings in medical sociology. New York: The Free Press, 1980.

Rogers, D. Juvenile smoking--A complex issue. Tobacco Reporter, 1981, 108(1), 44-46. 108(1), 44-46.

Rooney, J.F., & Wright, T.L. An extension of Jessor and Jessor's problem behavior theory from marijuana to cigarette use. International Journal of the Addictions, 1982, 17(8), 1273-1287.

Rotter, J.B. Social learning and clinical psychology. Englewood Cliffs, N.J.: Prentice-Hall, 1954.

Rotter, J.B., Chance, J.E., & Phares, E.J. Applications of a social learning theory New York: Holt, Rinehart and Winston, 1972.

Sadava, S.W. A Field-Theoretical Study of College Student Drug Use. Canadian Journal of Behavioral Science, 1971, 3, 337-346.

Sadava, S.W. Research approaches in illicit drug use: a critical review. Genetic Psychology Monographs, 1975, 91, 3-59.

Siegelman, M. Evaluation of Bronfenbrenner's questionnaire for children conerning parental behavior. Child Development, 1965, 36, 163-174.

Smart, R.G., & Fejer, D. Drugs use among adolescents and their parents: closing the generation gap in mood modification. Journal of Abnormal Psychology, 1972, 79, 153-160.

Tec, N. Family and differential involvement with marijuana: a study of suburban teenagers. Journal of Marriage and the Family, 1970, 32, 656-664.

Thompson, E.L. Smoking education programs: 1960-1976. American Journal of Public Health, 1978, 68 250-257.

Tudor, C., Peterson, D., & Elifson, K. An examination of the relationship between peer and parental influences and adolescent drug use. Adolescence, 1980, 15(60), 783-798.

U.S. Department of Health, Education, and Welfare. Smoking and health: Report of the advisory committee to the Surgeon General of the Public Health Service. U.S. Department of Health, Education, and Welfare (Publication number 1103), 1964.

U.S. Department of Health, Education, And Welfare. Smoking and health: A report of the Surgeon General. Washington, D.C.: U.S. Government Printing Office (Chapter 17), 1979.

Williams, A.F. Personality and other characteristics associated with cigarette smoking among young teenagers. Journal of Health and Social Behavior, 1973, 14, 374-380.

Williams, C.L., Eng, A., Botvin, G.J., Hill, P., & Wynder, E. Validation of students' self-reported cigarette smoking status with plasma cotinine levels. American Journal of Public Health, 1979, 69, 1272-1274.

Wong-McCarthy, W.J. & Gritz, E.R. A report prepared for the American Lung Association of Los Angeles. 1983.

Zellner, M. Self-esteem, reception, and influenceability. Journal of Personality and Social Psychology, 1970, 15, 87-93.

APPENDIX A

STUDENT OPINION QUESTIONNAIRE

THIS SURVEY IS ANONYMOUS

PLEASE DO NOT WRITE YOUR NAME ON IT

FROM: PROJECT DIRECTOR

--This survey is confidential and anonymous. The answers you give in this questionnaire will not be identified with you in any way; nor will the answers be available to anyone outside of the small research project staff at the University of California, at Santa Cruz. We assure your privacy so that you can be completely honest in your responses. Your thoughtful and honest answers are very important.

INSTRUCTIONS: Please answer every question in the questionnaire. Give only one answer per question. If two answers seem close then put down the one which you think is the best answer. For each question either circle the word, write in a response, or mark an "X" on the line of your choice. Do not write answers to the left of the margin; that space is for office use. If you are uncertain about what a question means then raise your hand and we will explain it.

This is a lengthy questionnaire, so please work quickly. Again, be thoughtful, accurate, and honest in your answers. When you finish close the questionnaire; we will collect them.

***It is important that this questionnaire reflect your own opinion; do your own work, and respect the privacy of your neighbors, this is confidential information.

DO NOT WRITE HERE

1

1. Write in today's date_____

2. Your grade: 6th [0] 7th [1] 8th [2]

3. The name of your school_____

4. Are you male or female?

Male [0] Female [1]

5. Print the LAST LETTER of your LAST NAME here:_____
[If your last name was SmitH, you would print an H.]

6. Print the LAST LETTER of your FIRST NAME here:_____
[If your first name was MarY, you would print a Y.]

7. Write in the DAY [not month or year] of your birthday,
[1st, 23rd, 30th, etc.]_____

8. What is your race?

Black [0] White [1] Hispanic [2] Asian [3] Other [4]

9. How old are you?

10 or less [0] 11 [1] 12 [2] 13 [3] 14 [4] 15 or + [5]

10. What percentage of adults do you think smoke cigarettes?_____%

11. What percent of students your age do you think smoke cigarettes?_____%

12. How often, if ever, do you smoke cigarettes? [Answer by placing an "X" on one of the dotted lines.]

[0] ____Never tried it.
[1] ____Tried it once or twice.
[2] ____I smoke one or two cigarettes a month.
[3] ____About one or two cigarettes a week.
[4] ____About five cigarettes a week.
[5] ____About half a pack a week.
[6] ____About a pack a week.
[7] ____About half a pack a day.
[8] ____A pack, or more, a day.
[9] ____I used to, but I quit.

13. How many cigarettes, if any, have you smoked in the past 24 hours?_____

14. How many cigarettes, if any, have you smoked in the past 7 days?_____

15. Does your father smoke cigarettes? [Circle #3 if you do not live with your father or step father.]

He never smoked [0] He quit [1] Yes, he smokes [2] No father [3]

DO NOT WRITE HERE

16. Does your mother smoke cigarettes? [Circle #3 if you do not live with your mother or step mother.]

She never smoked [0] She quit [1] Yes, she smokes [2] No mother [3]

17. How would your father feel if he knew you smoked cigarettes? [Please answer even if you never plan on smoking.]

[0] ____Forbid it
[1] ____Strongly disapprove
[2] ____Mildly disapprove
[3] ____Would not care
[4] ____Would approve
[5] ____Don't know
[6] ____No father [or do not live with father/stepfather]

18. How would your mother feel if she knew you smoked cigarettes? [Please answer even if you never plan on smoking.]

[0] ____Forbid it
[1] ____Strongly disapprove
[2] ____Mildly disapprove
[3] ____Would not care
[4] ____Would approve
[5] ____Don't know
[6] ____no mother [or do not live with mother/stepmother]

19. Do you have any older sisters?

No [0] Yes [1]

20. Do they smoke cigarettes fairly regularly?

No older sisters [0] Never Smoked [1] Quit [2] They smoke [3]

21. Do you have any older brothers?

No [0] Yes [1]

22. Do they smoke cigarettes fairly regularly?

No older brothers [0] Never smoked [1] Quit [2] They smoke [3]

23. Do you like your parents?

NOT AT ALL	NOT MUCH	UNSURE	YES, SOME	YES, A LOT
[0]	[1]	[2]	[3]	[4]

24. Are you happy with your home life?

NOT AT ALL	NOT MUCH	UNSURE	YES, SOME	YES, A LOT
[0]	[1]	[2]	[3]	[4]

DO NOT WRITE HERE

For these next four questions, if you do not smoke cigarettes, then try to answer them the way you think a cigarette smoker would.

25. Please describe the person[s] you are most likely to be with when you smoke cigarettes.

[0] ____Alone
[1] ____With my best friend[s]
[2] ____With my brother[s] or sister[s]
[3] ____With my parent[s]
[4] ____With strangers or people I do not know well
[5] ____With no one in particular
[6] ____Other [please write in]_____

26. Please describe the place you are most likely to be when you smoke cigarettes.

[0] ____At home
[1] ____At school
[2] ____At a friends house
[3] ____At a party
[4] ____No particular place
[5] ____Other [please write in]_____

27. Please describe where you usually get your cigarettes from.

[0] ____Parents
[1] ____Brothers or sisters
[2] ____Friends
[3] ____Get them at the store
[4] ____Other [please write in]_____

28. Please describe who you were with when you smoked you first cigarette.

[0] ____Alone
[1] ____Parent[s]
[2] ____Brother[s] or sister[s]
[3] ____Friend[s]
[4] ____Strangers or people you did not know well
[5] ____Other [please write in]_____

DO NOT WRITE HERE

29. Of your three closest friends, how many of them smoke cigarettes?

Ø [Ø] 1 [1] 2 [2] 3 [3]

30. Of those three best friends, how many cigarettes does your BEST friend in the group smoke [to the best of your knowledge].

[Ø] ____Never tried it
[1] ____Tried it once or twice
[2] ____One or two cigarettes a month.
[3] ____About one or two cigarettes a week.
[4] ____About five cigarettes a week.
[5] ____About half a pack a week.
[6] ____About a pack a week.
[7] ____About half a pack a day.
[8] ____A pack, or more, a day.
[9] ____He/she used to, but quit.

31. Do you think you may be smoking cigarettes a year from now?

Definitely Not [Ø]	Probably Not [1]	Not Sure [2]	Probably Yes [3]	Definitely Yes [4]

32. Do you think you may be smoking cigarettes five years from now?

Definitely Not [Ø]	Probably Not [1]	Not Sure [2]	Probably Yes [3]	Definitely Yes [4]

33. Think of the very best friend you mentioned above; do you think that he/she will be smoking cigarettes five years from now?

Definitely Not [Ø]	Probably Not [1]	Not Sure [2]	Probably Yes [3]	Definitely Yes [4]

34. Do you think smoking cigarettes is bad for your health?

Definitely Not [Ø]	Probably Not [1]	Not Sure [2]	Probably Yes [3]	Definitely Yes [4]

35. Do you think smoking cigarettes can cause very serious illness?

Definitely Not [Ø]	Probably Not [1]	Not Sure [2]	Probably Yes [3]	Definitely Yes [4]

36. If YOU smoked cigarettes for a long time [10 years] what do you think would be the chances that YOU could get a very serious illness from it.

Very Low [Ø]	Pretty Low [1]	In-Between [2]	Pretty High [3]	Very High [4]

DO NOT WRITE HERE

37. Which of the following diseases is NOT caused or made worse by smoking cigarettes?

[0] ____Lung Cancer
[1] ____Bronchitis
[2] ____Heart Disease
[3] ____Diabetes
[4] ____Asthma

38. How often do you use chewing tobacco?

[0] ____Never tried it.
[1] ____Tried it once or twice.
[2] ____A couple of times a year.
[3] ____About once a month.
[4] ____Twice a month.
[5] ____Once a week.
[6] ____A few times a week.
[7] ____Everyday.
[8] ____I used to, but I quit.

39. How often, if ever, do you smoke marijuana?

[0] ____Never tried it.
[1] ____Tried it once or twice.
[2] ____A couple of times a year.
[3] ____About once a month.
[4] ____Twice a month.
[5] ____Once a week.
[6] ____A few times a week.
[7] ____Everyday.
[8] ____I used to, but I quit.

40. Of your three <u>closest</u> friends, how many of them smoke marijuana?

0 [0] 1 [1] 2 [2] 3 [3]

41. During the past 7 days, on how many days did you smoke marijuana_____DAYS.

42. How often, if ever, do you use alcohol? [This does NOT include alcohol that is given to you by your family at holidays, birthdays, dinner, etc.]

[0] ____Never tried it
[1] ____Tried it once or twice
[2] ____About once a month.
[3] ____Twice a month.
[4] ____Once a week.
[5] ____A few times a week.
[6] ____Every day.
[7] ____I used to, but I quit.

DO NOT WRITE HERE

43. Of your three <u>closest</u> friends, how many of them drink alcohol?

0 [0] 1 [1] 2 [2] 3 [3]

44. Have you been drunk on alcohol in the last month?

No [0] Yes [1]

45. During the past 7 days, on how many days did you drink alcohol_____DAYS.

46. How often, if ever, do you use stronger drugs like LSD? [This does not include drugs prescribed to you by your doctor.]

[0]____Never tried it.
[1]____Tried it once or twice.
[2]____Once a month.
[3]____Once a week.
[4]____Every day.
[5]____I used to, but quit.

47. Of your three <u>closest</u> friends, how many of them use stronger drugs.

0 [0] 1 [1] 2 [2] 3 [3]

48. How interested are you in dating?

Not at all [0] | Not much [1] | Unsure [2] | Yes, a little [3] | Yes, very much [4]

49. How often do you date now?

[0]____Never
[1]____Once or twice a year on special occasions.
[2]____About once a month
[3]____About once a week

50. Are you dating anyone now?

No [0] Yes [1]

51. Does the person you are dating smoke cigarettes?

No [0] Yes [1] Not dating anyone now [2]

52. Would you date someone who smoked cigarettes?

Definitely No [0] | Probably No [1] | Unsure [2] | Probably Yes [3] | Definitely Yes [4]

DO NOT WRITE HERE

53. Do you like school?

Not at all [0] | Not much [1] | Unsure [2] | Yes, somewhat [3] | Yes, a lot [4]

54. Do you plan on going to college?

No [0] Yes [1]

55. What kind of grades do you usually get?

A's [0] B's [1] C's [2] D's [3] F's [4]

56. How far did your father go in school?

[0] ____No high school.
[1] ____Some high school.
[2] ____High school graduate.
[3] ____Some college.
[4] ____College graduate.
[5] ____Post college graduate.
[6] ____Technical/Trade
[7] ____Don't know

57. How far did your mother go in school?

[0] ____No high school.
[1] ____Some high school.
[2] ____High school graduate.
[3] ____Some college.
[4] ____College graduate.
[5] ____Post college graduate.
[6] ____Technical/Trade
[7] ____Don't know

58. Is going to school and getting good grades very important to you?

Not At All [0] | Not Too Much [1] | Unsure [2] | Yes, A Little [3] | Yes, A Lot [4]

59. Do you participate in organized school sports after school?

No [0] Yes [1]

60. Do you attend some sort of religious services fairly regularly?

No [0] Yes [1]

61. Did you transfer to this school during this school year?

No [0] Yes [1]

DO NOT WRITE HERE

62. What is the name of the teacher who usually teaches this class?_____

63. Do you think the teacher you just mentioned is a good teacher?

Not at all [0] Not much [1] Okay [2] Good [3] Very good [4]

64. Do you think most of the students like and respect this teacher?

Not At All [0] A Little [1] Average [2] Above Average [3] Well Above Average [4]

65. If you could be any age you wanted to be right now, how old would you like to be?_____?

66. If you had something that was bugging you that you wanted to talk to someone about who would you probably talk to first.

Parents [0] Brother/Sister [1] Friends [2] Teacher [3] Other [4]

For this next set of questions please place an "X" on one of the dotted lines. You will be given a statement and then asked for your opinion on it. The more you agree with the word on one side or the other, the closer you would place your "X" to that side. The less strongly you feel, the more your answer would be towards the middle.

67. Based on your personal experience and observations do you think most 7th graders who started smoking cigarettes made a thoughtful, personal decision to do so, or did they just do it without thinking about it because a friend offered them one? Place an "X" in the appropriate slot.

Thoughtful Decision ___/___/___/___/___/___/___ Just Did It
[0] [1] [2] [3] [4] [5] [6]

68. Do you think 7th graders who smoke cigarettes are more or less anxious or nervous than their classmates who do not?

More Nervous ___/___/___/___/___/___/___ Less Nervous
[0] [1] [2] [3] [4] [5] [6]

69. Do you think that 7th graders who smoke cigarettes have more or less self-respect than their classmates who do not?

More Self-Respect ___/___/___/___/___/___/___ Less Self-Respect
[0] [1] [2] [3] [4] [5] [6]

Now please do the same for the following list of word pairs. Indicate how you would rate 7th/8th graders who smoke cigarettes on these items. Place an "X" in the appropriate slot.

DO NOT WRITE HERE

7th and 8th graders who smoke are:

[0] [1] [2] [3] [4] [5] [6]

70. GOOD___/___/___/___/___/___/___BAD

71. DUMB___/___/___/___/___/___/___SMART

72. ATTRACTIVE___/___/___/___/___/___/___/UNATTRACTIVE

73. UNHAPPY___/___/___/___/___/___/___/HAPPY

74. HEALTHY___/___/___/___/___/___/___SICK

75. ASSERTIVE___/___/___/___/___/___/___UNASSERTIVE

76. UNSOPHISTICATED___/___/___/___/___/___/___SOPHISTICATED

77. COOL___/___/___/___/___/___/___NOT COOL

78. DEPENDENT___/___/___/___/___/___/___INDEPENDENT

79. SEXY___/___/___/___/___/___/___NOT SEXY

80. ADDICTED___/___/___/___/___/___/___NOT ADDICTED

81. IMMATURE___/___/___/___/___/___/___MATURE

82. IN CONTROL___/___/___/___/___/___/___NOT IN CONTROL

[0] [1] [2] [3] [4] [5] [6]

83. Please try to imagine what you would do if the following situation were to occur to you:

It is Friday night and you have decided to stay at home and watch television. You are feeling a little tired and you think you may be getting a cold. There is a knock at the door. Some of your friends have come over and they want you to go out with them to go do something. You tell that you are feeling tired and they start to kid you. What would you probably do if this situation were to happen to you?

[0]____Tell them to come in and stay at your house for a while.
[1]____Tell them you are tired and do not want to go out. You stay home and they leave.
[2]____Tell them that you are sick, and do not want to go out. You stay at home and they leave.
[3]____Go out, but you come home earlier than the rest of them.
[4]____Go out, and you stay out as long as the rest of your friends.
[5]____Other [please write in]_____

DO NOT WRITE HERE

For this next set of questions we would like you to indicate how true the statements are for you. Please circle the answer which best fits your feelings. Circle only ONE answer per question.

84. A few cigarettes cannot hurt anyone.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

85. It is important that my friends like me.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

86. Other teenagers are happier than I am.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

87. I can talk with at least one of my parents about everything.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

88. Smoking cigarettes makes some people look more cool and sophisticated.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

89. It is important that my teachers like me.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

90. My parents do not think that I can take care of myself.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

91. Because I like my friends, I often do what I think they want me to do.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

92. I am popular with kids my own age.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

DO NOT WRITE HERE

113. If my parents told me I could not smoke cigarettes I might do it just to show them that I made my own decisions and they could not tell me what to do.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

114. At least one of my parents help me with my schoolwork when I do not understand something.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

115. Teenagers who smoke probably get more dates that ones who do not.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

116. If someone is a member of a group, like a close group of friends, it is important for that person to go along with what the rest of the group is doing.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

117. I worry when I go to bed at night.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

118. When my parents want me to do something they usually explain why.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

119. Smoking cigarettes can give you more self-confidence when you are around other people.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

120. My parents are happy to be with me.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

121. I seem to worry a lot of the time.

Never True [0] Seldom True [1] Sometimes True [2] Often True [3] Almost Always True [4]

DO NOT WRITE HERE

122. It is important to decide things for yourself, regardless of what your friends may think.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

123. Smoking cigarettes can help you be more popular with your friends.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

124. Things are all mixed up in my life.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

125. I get nervous when someone watches me work.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

126. I often do not feel very good about myself.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

127. My friends would be upset if I smoked cigarettes.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

128. At least one of my parents is there for me when I need them.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

129. I don't care what happens to me.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

130. At least one of my parents teaches me things I want to learn.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

131. I'm pretty happy.

Never True [0] | Seldom True [1] | Sometimes True [2] | Often True [3] | Almost Always True [4]

APPENDIX B

SCALES

Quality of family life

**87 I can talk with at least one of my parents about everything.
90 My parents do not think I can take care of myself.
**94 At least one of my parents enjoys talking with me.
**99 At least one of my parents helps me when I have troubles.
**103 At least one of my parents goes on outings with me.
**106 At least one of my parents is nice to me.
109 I can talk my parents into almost anything.
111 My parents insist that I get permission before I go to a movie, or some other entertainment.
**114 At least one of my parents help me with my schoolwork when I do not understand something.
**118 When my parents want me to do something they usually explain why.
**120 My parents are happy to be with me.
**128 At least one of my parents is there for me when I need them.
**130 At least one of my parents teaches me things I want to learn.

Self-esteem

92 I am popular with kids my own age.
97 I would rather play with children younger than me.
**101 I'm a lot of fun to be with.
**107 I like myself most of the time.
**112 There are times when I wish I could be someone else.
**124 Things are all mixed up in my life.
**126 I often do not feel very good about myself.
**129 I don't care what happens to me.
**131 I'm pretty happy.

Anxiety

86 Other teenagers are happier than I am.
**95 My feelings get hurt easily.
**100 I often worry about what people think about me.
**102 I often feel nervous.
110 It is hard for me to keep my mind on my school work.
**117 I worry when I go to bed at night.
**121 I seem to worry a lot of the time.
**125 I get nervous when someone watches me work.

Cig

**12 How often, if ever, do you smoke cigarettes?

Selfsub

**38 How often do you use chewing tobacco?
**39 How often, if ever, do you smoke marijuana?
**41 During the past seven days, on how many days did you smoke marijuana?
**42 How often, if ever, do you use alcohol?
**44 Have you been drunk on alcohol in the last month?
**45 During the past seven days, on how many days did you drink alcohol?
**46 How often, if ever, do you use stronger drugs like LSD?

Grpcig

**29 Of your three closest friends, how many of them smoke cigarettes?
30 Of those three best friends, how many cigarettes does your BEST friend in the group smoke?
33 Think of the very best friend you mentioned above; do you think that he/she will be smoking cigarettes five years from now?

Grpsub

**40 Of your three closest friends, how many of them smoke marijuana?
**43 Of your three closest friends, how many of them drink alcohol?
**47 Of your three closest friends, how many of them use stronger drugs?

Parsmok

**15 Does your father smoke cigarettes?
**16 Does your mother smoke cigarettes?

Paratt

**17 How would your father feel if he knew you smoked cigarettes?
**18 How would your mother feel if she knew you smoked cigarettes?

Perceived social utility

68 Do you think that seventh graders who smoke cigarettes are more or less anxious or nervous than their classmates who do not?
69 Do you think that seventh graders who smoke cigarettes have more or less self-respect than their classmates who do not?
**72 Seventh graders who smoke are: Attractive/Unattractive.
**76 Seventh graders who smoke are: Unsophisticated/Sophisticated.
**77 Seventh graders who smoke are: Cool/Not Cool.
78 Seventh graders who smoke are: Dependent/Independent.
**79 Seventh graders who smoke are: Sexy/Not Sexy.
**88 Smoking cigarettes makes some people look more cool and sophisticated.
**115 Teenagers who smoke probably get more dates than ones who do not.
**119 Smoking cigarettes can give you more self-confidence when you are around other people.
**123 Smoking cigarettes can make you more popular with your friends.

Health beliefs

**34 Do you think smoking cigarettes is bad for your health?
**35 Do you think smoking cigarettes can cause very serious illness?
36 If YOU smoked cigarettes for a long time (10 years) what do you think would be the chances that you could get a very serious illnes from it.
74 Seventh graders who smoke are: Healthy/Sick.
80 Seventh graders who smoke are: Addicted/Not Addicted.
84 A few cigarettes cannot hurt anyone.

Behavioral intention

**31 Do you think you may be smoking cigarettes a year from now?
**32 Do you think you may be smoking cigarettes five years from now?

Sociability

**48 How interested are you in dating?
**49 How often do you date now?
85 It is important that my friends like me.
**92 I am popular with kids my own age.
98 I prefer to do things with a group of my friends, rather than doing them alone.
**101 I'm a lot of fun to be with.

Need for peer approval

**83 It is Friday nigth and you have decided to stay home and watch television. You are feeling a little tired and you think you may be getting a cold. There is a knock at the door. Some of your friends have come over and they want you to go out with them to do something. You tell them that you are feeling tired and they start to kid you. What would you probably do if this situation were to happen to you?

**85 It is important that my friends like me.

**91 Because I like my friends, I often do what I think they want me to do.

**93 If someone dared me to do it I would smoke a cigarette just to show them that I was not chicken.

**98 I prefer to do things with a group of my friends, rather than doing things alone.

**104 Whenever I don't know what to do I get my friends advice rather than asking my parents.

**108 It is important to consider what your friends will think of you before you do something unusual.

**116 If someone is a member of a group, like a close group of friends, it is important for that person to go along with what the rest of the group is doing.

Academic orientation

**53 Do you like school?

**54 What kind of grades do you usually get?

**55 Is going to school and getting good grades very important to you?

APPENDIX C

QUESTIONNAIRE INSTRUCTIONS

Hello, my name is _____. I am from the University of California Santa Cruz. We are here today to finish a study we have been working on. As part of our study we are going to have you fill out a survey today. Now I would like to explain this survey to you.

THIS SURVEY IS ANONYMOUS (What does anonymous mean?)

PLEASE DO NOT WRITE YOUR NAME ON IT.

This survey is confidential and anonymous. The answers you give in this questionnaire will not be identified with you in any way; nor will the answers be available to anyone outside of the small research project staff at the University of California Santa Cruz. We assure your privacy so that you can be completely honest in your responses. Your thoughtful and honest answers are very important.

As with our last questionnaire there are a few items included in this survey, such as the last letter of your last name, which make up a secret code. We have this code so we can match this questionnaire with the one you took in the fall without knowing who you are. It is important for us to match your questionnaire, and it is also very important for us to maintain your privacy; and this code lets us do both of these things.

When you are asked to begin please open your questionnaire to the inside of the front page. There are questions on the front and back of every page except the very back of the questionnaire. Please answer EVERY QUESTION in the questionnaire. Give only ONE answer per question. If two answers seem close then put down the one which you think is the best answer; there are no absolute right or wrong answers. For each question either circle the word, write in a response, or mark an "X" on the line of your choice. DO NOT write to the left of the margin; that space is for office use. If you are uncertain about what a question means then raise your hand and we will explain it.

This is a lengthy questionnaire, so please work quickly. Again, be thoughtful, accurate, and honest in your answers. When you finish close the questionnaire; we will collect them.

It is important that this questionnaire reflect your own opinion; do your own work, and respect the privacy of your neighbors; this is confidential information.

We will also take a carbon monoxide test today. After you fill out your questionnaire we are going to have you blow up a balloon. We will take this breath sample and measure it to see if you have extra carbon monoxide in your lungs. People who smoke cigarettes have extra carbon monoxide in their lungs. This test will tell us whether or not your have smoked cigarettes in the pst few days. The measure is simple to do; we will just hold our breath for 10 seconds, let out a littel air, and then blow up the balloon and tie it off.

We will not pass out the questionnaires and you may begin.

Instructions for the breath test

Help the students with the questions, and help them stay on task so they finish the questionnaire in time. When everyone is finished, or 5 minutes before the period ends, quickly pass out the balloons. Students who have not completed their questionnaire should continue to work instead of doing the balloon test. Once everyone has a balloon you can give the instructions:

1. First stretch the balloon (demonstrate for them).
2. We are first going to hold our breath for 10 seconds when I tell you to; I will count out loud for us.
3. After the 10 seconds are up let out a little air, and fill up the balloon with the remaining air.
4. Ready?--take a deep breath.
5. One-thousand one, one-thousand two, etc.
6. Exhale a little air first.
7. Now blow up the balloon.
8. Tie off the balloons.

Go around and collect the students air samples.