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The impact of adolescents' socio-environmental, intrapersonal and interpersonal characteristics, on their reported alcohol and drug use, and school outcomes

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University of Hawaii, 1994
THE IMPACT OF ADOLESCENTS' SOCIO-ENVIRONMENTAL,
INTRAPERSONAL AND INTERPERSONAL CHARACTERISTICS,
ON THEIR REPORTED ALCOHOL AND DRUG USE,
AND SCHOOL OUTCOMES

A DISSERTATION SUBMITTED TO THE GRADUATE DIVISION OF THE
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DOCTOR OF EDUCATION

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ABSTRACT

This study attempts to examine the impact of socio-environmental characteristics, and intrapersonal and interpersonal characteristics of adolescents on reported drug usage and academic outcomes. Given the importance of understanding these characteristics as they impact drug usage and academic outcomes, the purposes of this study are to investigate the relationships among socio-environmental characteristics, intrapersonal characteristics, interpersonal characteristics, AOD (alcohol and other drugs) use, and school outcomes. Several models were developed to determine which of these characteristics are the best and most efficient predictors of AOD use and school outcomes.

From a large pool of eighty variables, preliminary analyses were constructed to establish the most valid and reliable indicators of the constructs. Correlational analysis aided in the development of subscales within each construct. Several models were investigated using multiple regression analysis to explain AOD use and academic endeavors as each set of variables was introduced into the model. The results of the study indicated significant relationships between socio-environmental characteristics, intrapersonal and interpersonal characteristics, and AOD use. Moreover, these three sets of independent variables were also related to a variety of school outcomes. Drugs and alcohol use, however, were practically insignificant when AOD use was entered as an exogenous variable to school outcomes.
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CHAPTER I. STATEMENT OF THE PROBLEM

INTRODUCTION TO THE PROBLEM

Substance abuse is a century old problem, but the problem became the center of attraction starting in the 1960s. Programs were created to curb the influence of drug abuse on the American population, but the problem grew in intensity and complexity with each decade. Most of the many varied drug prevention programs were thought to be successful, but some initial research in the 1970s and 1980s showed that prevention programs were having little impact on the growing problem (e.g., Berberian, Gross, Lovejoy & Paparella, 1976).

The etiology of substance abuse became a central theme in the mid 1980s. Evaluations of the numerous prevention programs and etiological research proved to be sketchy and lacked any evidence of positive long term outcomes. Finally, in the late 1980s, substance abuse seemed to begin an era of zero growth, and in some types of substance abuse, statistics showed a decline (Johnston, O'Malley & Bachman, 1989). In the early 1990s, after federal, state and private groups spent billions of dollars on programs, drug abuse began to increase in many of the segments of the population. The adolescent
population seemed to show signs of resistance to prevention programs and a renewed effort was initiated by concerned stakeholders who are in the fight against substance abuse. Substance abuse began to be viewed as part of a larger societal problem.

In light of the increasing alarm over the rise in substance abuse, this study proposes to look at the root causes and antecedents of drug abuse and how this problem is affecting the youth in our schools. This introductory chapter describes an overview of substance abuse in the United States, followed by a statement of the problems to be researched and the rationale for studying the problem. The need and significance of the study is presented and the theoretical model is examined, which illustrates the purpose of the study. The chapter proceeds into the research questions and associated hypotheses and is culminated with a summary of the problem and how this study can contribute to knowledge to develop prevention programs that deal effectively with substance abuse in adolescents.

Does substance abuse cost you and me? Every man, woman and child in American pays nearly one thousand dollars annually to cover the costs of unnecessary health care, extra law enforcement, auto accidents, crime and lost productivity resulting from substance abuse (National Drug Control Strategy, 1991). The nation spends two hundred thirty eight billion dollars on substance abuse. Thirty four billion is spent on unnecessary health care. The two hundred thirty eight billion includes the expense of treating substance abusers, the productivity losses caused by premature death and
inability to perform usual activities, and costs related to crime, destruction of property, and other losses. Much of this cost is borne by the Federal Government (See Appendix A) which is financed by the taxpayers. The taxpayers have been paying the bills for the last 40 years with the price tag growing every year.

The Alcohol and Other Drug (AOD) use prevention field has had a relatively brief, yet controversial history. Prevention programs emerged in the 1960s as fear mounted about the increased rate of illicit nonopiate AOD use among young people (Goplerud, 1991). The widespread use of marijuana, amphetamines, barbiturates, LSD, and other hallucinogens seemed a far cry from the previous and somewhat limited concern with use of heroin and alcohol. According to Goplerud (1991), the former was largely confined to inner-city ghetto communities. The latter was perceived as a socially acceptable, legal substance. The new array of drugs was both illicit and being used by economically privileged persons. Prevention approaches to the new problem rested largely on moral objections to AOD use and a great reliance on fear tactics. There was little evidence then that marijuana—the most popular of the new drugs—was harmful. There was also little knowledge about effective ways of reaching and communicating prevention information to young people.

By the 1970s, fear tactics were considered ineffective and often counterproductive (Job, 1988). Experts began to develop new prevention approaches. Among these was a cognitive orientation in which knowledge was seen as the key: teach youngsters about alcohol and other drugs and, in so doing, help them make informed
decisions for themselves. This and other approaches of the 1970s were perceived as failures in the eyes of the public since young people continued in increasing numbers to use alcohol and other drugs. Some prevention experts even concluded that factual information may have served to increase some adolescents' curiosity and, thus, the likelihood they would experiment with these substances (Goplerud, 1991).

During the 1970s, the resources needed to move forward in the field were scarce. As noted by Goplerud (1991), research on prevention efforts was rudimentary and often post hoc. Investigators were few in number, and there was little to attract new researchers to the field. Separate bureaucratic structures were established at Federal, State, and local levels to address issues associated with alcohol use and other illicit AOD use, despite the increasing evidence that multiple AOD use patterns were becoming the norm. Drug patterns were constantly changing and new drugs were being produced and distributed. At the same time, research was beginning to show that no one factor—pursuit of pleasure, relief from boredom, or psychic distress, peer influence, family problems—was likely to be the sole reason for the widespread experimentation and sometimes continuing use of AOD among young Americans (e.g., Bry, McKeon, & Pandina, 1982; Dryfoos, 1987; Newcomb, Maddahian, & Bentler, 1986). As knowledge accumulated, a larger number of risk factors have been added to phenomena that influence AOD use. The multiplicity of these risk factors increases the probability of AOD use among youth.
The 1980s and early 1990s brought increased recognition of the complexity, interrelatedness, and multidimensional nature of problems associated with adolescent AOD use (Schecter, 1991). The field could no longer rely on narrowly focused, unidimensional interventions. This makes research even more important to determine the efficacy of prevention interventions—what works and for whom.

Few of the most promising prevention strategies that have emerged in recent years have received formal evaluations of their long term effectiveness in actually preventing substance abuse (Office of National Drug Control Policy, 1993). Consequently, conclusions about "what works" in this rapidly advancing field generally lack a solid scientific basis. Rather, conclusions are based on the opinions of experts, although even experts say that more is known about what does not work in prevention than what does (Goplerud, 1991).

Because traditional prevention strategies appear to have limited long-term effectiveness, experts contend that they require enhancement (Bell & Battjes, 1885). They must address specific risk factors beyond peer pressure to use drugs, such as family or environmental influences, and they must be strengthened by adding periodic "booster" sessions throughout the course of a youth's development. Hawkins, Gtalano and Miller (1991) advocate a "risk-focused prevention approach" that is based on known causes of substance abuse. By targeting interventions to intercede when known warning signs of eventual substance abuse arise, prevention programs can interrupt the causal chain of events that leads to
substance abuse. Where precursors to substance abuse are not amenable to change, such as economic pressures or dysfunctional families, prevention programs can foster protective mechanisms that will increase the chances that participants can overcome those circumstances without turning to substance abuse.

Research aimed at prevention has been useful in identifying a variety of factors that influence substance abuse. Hawkins, et al. (1991) identify 16 distinct risk factors that precede drug abuse. These risk factors fall into three general categories when applied to the proposed model in this study. Socio-environmental factors include the social climate of one's community, both with respect to its overall cohesion and its specific standards of behavior regarding substance use. In addition, individuals who live in neighborhoods suffering from severe poverty and community disintegration are at increased risk for drug abuse. Similarly, youths who reside in areas where psychoactive substances are more widely available are more likely to abuse alcohol or drugs than young people from areas with lower availability (Office of National Drug Control Policy, 1993). Factors representing the effects of peers and family are also included in this category. Age and gender are represented in this category and will be diagnosed further in a later portion of this dissertation.

Intrapersonal factors are those factors that represent attitudes, values, self-concept and locus of control. Other recognized intrapersonal factors are creativity, spontaneity and decision making skills. Some of the intrapersonal factors associated with AOD use are greater value of independence, lower value on
achievement, lower expectations for academic success, greater
tolerance for deviant behavior and greater expectation for failure
(Murray & Perry, 1985).

Interpersonal factors include poor relations with peers as well
as family members, such as an overall lack of cohesion within the
family, inadequate conflict resolution and behavior management
skills. Attachment, imitation and commitment are concepts
associated with interpersonal factors. Juvenile delinquency is
included in this grouping of socialization skills and is highly
correlated to substance abuse (Elliot, Huizinga & Ageton, 1985).

Additional individual risk factors have been identified for the
various developmental stages, early childhood through adolescence.
Steinberg (1992) reexamines the meaning of adolescence and the
adolescent transition in light of recent research. Two common
views no longer seem appropriate: (1) that adolescence is an
inherently difficult period; and (2) that AOD use results from
normal problems in coping with this transition. Most adolescents
manage this transitional period without serious difficulties. The
challenge is to distinguish between youngsters likely to experience
difficulties during the adolescent transition and those who will not.
Steinberg differentiates between risk factors that increase
vulnerability and protective factors that increase resistance to
developing problems, somewhat similar to Hawkins et al. (1991).
In identifying such factors, one also needs to differentiate between
those risk and protective factors that operate at the individual level
(e.g., personality, behavioral patterns, and school performance), the
interpersonal level (e.g., family and peer relations), and the
institutional level (e.g., school, work, and societal roles). Steinberg strongly argues for use of new knowledge, recognition that early intervention (prior to adolescence) is likely to be most effective, targeting of efforts to youngsters most at risk, tailoring of interventions to different types of youngsters, and a more systematic focusing of efforts on interpersonal and institutional factors and less exclusively on individual factors.

Lorion, Bussell, and Goldberg (1992) address the issues involved in identifying high-risk youth. They too, note that it is most cost-effective to target those more vulnerable and in need of AOD use prevention services. These authors translate what is currently known about identifying and assessing youth at risk into potentially viable strategies. Lorion et al. present several methods and approaches for identifying subgroups of youth at risk including secondary analyses of existing large-scale data bases, direct collection of data through ethnographic studies, key informant surveys, community forums, youth surveys, psychometric assessments, and needs assessments, and the use of composite indices to enhance reliability and predictive power of data used for making estimates of youth at risk.

Lorion and his colleagues (1992) remind us that the estimation of the risk itself carries risks, one of which is the possibility that identification will lead to stigmatization and self-fulfilling behavior. Programs need to take measures to guard against the possibility that participants in prevention interventions will be stigmatized by an "at risk" label.
Schaps and Battistich (1992) address one of the most critical questions facing prevention interventionists—how can one promote healthy development? They describe healthy development as a "proactive program based in the schools that develops a protective factor and increases resiliency among students to resist substance abuse" (p. 128). The authors focus on early intervention through new approaches to school-based prevention. Entry into school, as they note, marks a major transition in the developmental path toward adulthood and autonomous functioning. Schooling itself has a pervasive influence on emotional and social development as well as cognitive development. The school, in essence, is a major socialization influence.

Schaps and Battistich (1992) propose a tentative model of socialization and social development that rests, in part, on the establishment of a positive affective bond between the individual child and important socializing agents and institutions. The role of these agents is to promote interpersonal relatedness, competence, and autonomy. The proposed model implies that schools should be concerned with the whole child—an undertaking that will require deep and widespread changes in the current organization, climate, and practices of most American schools.

Hawkins et al. (1991) stated that research is needed to determine how risk factors interacted and how these psychological factors may play into the poor academic performance and lack of commitment to school that is known to predict drug abuse. A close relationship between AOD use and academic performance was shown by a New York State Substance Abuse Survey done in 1984.
(Tobias, 1986). Results showed that 28% of non-users achieved an A average, while only 8% of regular AOD users achieved an A average. In contrast, 2% of non-users earned D's or F's, compared to 23% of students described as "extensive users."

**STATEMENT OF THE PROBLEM**

Today's schools could be classified as a risk factor or as a protective factor. They can be a protective haven from the surrounding environment or a risk to the student if violence and unhealthy peer pressure are descriptors for the school. Dinges and Oetting (1993) confirm that peer influence is important in understanding adolescent AOD use. Their findings indicate that a youth who uses specific drugs almost invariably has friends who also use those same drugs.

Schools have a captive audience with the children of America. We have the opportunity to develop our youth into the citizens of the future that will lead our country into the next century. The 1970s and 1980s were turbulent times for the growing substance abuse problem. Studies and surveys collected data from the late 80s began to show a decline in some categories of AOD use among school age children (Johnston et al. 1989). The 1990s began to demonstrate a change in substance abuse. President Clinton, in his 1994 State of the Union Address, noted that current statistics were showing drug abuse on the rise again.

The following statements were part of a speech given by Lee P. Brown, Director of the Office of National Drug Control Policy,
Executive Office of the President, Washington, DC. The comments move a long way into explaining the current substance abuse problem and reasons and purposes for this study on the relationship of the socio-environment, intrapersonal skills, and interpersonal skills on AOD use and school outcomes.

I regard the 1993 High School Survey data with concern. As the President so clearly articulated in his State of the Union address, we are disturbed by indicators that show increases in AOD use, reduced perception of risk and increased perception of illicit drug availability by our youth. As I noted in our Interim Strategy last October, early indicators of declining AOD use by the nation's young have prompted some to conclude that the drug problem is no longer a crisis. We know now that this conclusion is as dangerous as it is wrong.

We have taken the new data into account in the 1994 National Drug Control Strategy, which we expect will be presented to Congress next week. But it is clear that we need to move directly and forcefully to address this problem now. We need, first, to know more about the reasons for this upturn; to determine its underlying causes. We also need to have the best available counsel from experts in prevention and associated disciplines, to help us develop full and appropriate responses to it. In addition, we need to integrate the findings from the major study of prevention programs conducted by the Substance Abuse and Mental Health Services Administration that Secretary Shalala just mentioned, to assure that we mount the most effective possible efforts.

Above all, we must make every effort to ensure that all Americans are aware of the problem and its potential serious consequences. We must have the support of every element of our society if we are not to allow another generation of youth to be captured by illicit drugs—to begin a new cycle of AOD use and dependency.
To mount truly effective prevention efforts, we need the involvement of all Americans. We need the help and cooperation of leaders at the state and local level. We need the help and support of our religious leaders and faith communities. We must have the cooperation and commitment of our law enforcement institutions, and the judicial system. And we must use state-of-the-art techniques to stem the supply of drugs wherever possible.

Schools play a vital role in drug prevention, but we know that schools cannot take the place of the family, or the wider community in teaching our children values and preparing them for life. We need the full and total commitment of parents to begin the drug education process before a child sets foot in a classroom. We also need to get the message to youth that drugs are both dangerous and illegal, and that includes the under-age use of alcohol and tobacco. We must ensure that our law enforcement efforts—against drug trafficking and distribution are continuous and effective.

Secretary Shalala, I appreciate what you said about my using my Cabinet post to broaden visibility of the drug issue and support for the prevention of AOD use. I believe that making lasting progress against AOD use can only happen when we attack the root causes of AOD use. I am talking about poverty, alienation, inadequate housing, lack of educational opportunities and poor schools, racism and discrimination and jobs—jobs that support strong families and build our sense of hope.

We must take action on this problem now. Therefore, following the release of the National Drug Control Strategy I will convene an emergency meeting of experts in the field of prevention and drug education. I will solicit their views of this problem and their best recommendations for its solution.

In addition to seeking the views of experts on the causes of the increase in AOD use by youth, I will meet with key officials of all concerned Federal agencies, to determine what forceful, direct and
appropriate responses the Administration should take to address this problem today.

Now, it is my pleasure to introduce Secretary of Education Richard W. Riley. Secretary Riley is to be commended for his leadership in securing funding for school-based drug prevention and education programs. His successful efforts could not be more timely.

(Speech presented by Lee Brown, 1993)

The alarm has been sounded. The federal government has recognized the importance of schools in trying to reverse the trend of increased substance abuse in our school age children. A similar alarm was sounded by Johnston (1993), principal investigator in the study entitled "Monitoring The Future." This survey has collected data from senior high school students for the last decade in order to follow substance abuse trends. Last year, a survey was designed and data collected across the country on nearly 50,000 students in the expanded populations of grades 8 and 10.

Johnston (1993) warns that progress in the war against drugs may have been taken too much for granted over the past two years, according to University of Michigan scientists who conduct the annual national survey of secondary school students. The study, which is funded under research grants from the National Institute on Drug Abuse, found statistically significant increases in the use of a number of drugs by 8th-graders, most of whom are only 13 or 14 years old. Increases are reported in their use of marijuana, cocaine, crack, LSD, other hallucinogens, stimulants, and inhalants.

According to Johnston (1993), these results provide an important early warning signal to the nation.
As the peak years of the drug epidemic pass, there will be replacement cohorts of young Americans who did not have the chance to learn vicariously by observing the experiences of their drug-using contemporaries, including those they see in the mass media. As this opportunity for informal learning subsides, formal or intentional mechanisms become all the more important. This means that what children learn in school, from their families, through the media, and from the nation's leaders determines whether they see drugs as being as dangerous and as unacceptable as their predecessors did.

(US. Department of Education, 1992, p. 15)

PURPOSE OF THE STUDY

There are multitudes of theories on how to reverse the trend of substance abuse. The focus of this research will be to identify some of factors that cause substance abuse and investigate the relationship of these factors and substance abuse to school outcomes. The concentration of this study will be on those factors described as intrapersonal skills and interpersonal skills.

NEED AND SIGNIFICANCE OF THE STUDY

Theories of AOD use provide us with guidelines or orienting statements for program development. They show us the intervening variables that need to be targeted and suggest the type of curriculum components that might be effective in our schools.

The relationship of substance abuse in the schools and poor academics was noted by President Reagan when he signed into law
the Drug-Free Schools and Communities Act of 1986. This legis­
lation provided resources to reinforce and coordinate efforts of
schools, communities, state and local officials to eliminate the use of
drugs by our nation's youth. These moneys, which totaled more
than six hundred million in 1993, were dispersed to each state
educational system per grant requests. Each school district then
applies to its respective state for an amount to cover the districts
proposed substance abuse prevention program. The Department of
Education followed the President's concern by including in its
National Goals for Education—America 2000: An Educational
Strategy that "Every school in America will be free of drugs and
violence, and will offer a disciplined environment conducive to
learning" (See Appendix B).

In April 1984, Scott Thompson, executive director of the
National Association of Secondary School Principals stated:

Pot poses the most serious single challenge
faced by our high schools today. It constitutes the
greatest barrier to student motivation and rigorous
study that exists. Marijuana demotivates students,
makes them lackadaisical. Pot-smokers also drop out
of student activities and athletics, and this harms
their social and physical development. Marijuana
really does penalize the potential of students to
develop in all areas in leadership and academic
growth. It's a terrible thing.

Tobias (1986) argues that users display disruptive and
rebellious behavior not only when they are high, but also when
they are not. Even users who do not use at school affect the class-
room environment and obstruct learning for everyone in the room.
Teachers cannot control a user's behavior in the classroom, just as parents cannot control it at home. Like families, classrooms with chemically dependent children become dysfunctional. Furthermore, users pressure non-users to use.

Mel J. Riddle, coordinator of substance abuse prevention for Fairfax County, Virginia public schools in 1981 and 1982, told the Senate Subcommittee on Alcoholism and Drug Abuse, on October 21, 1981:

Probably the worst effect of marijuana use is on the school climate and the general school environment. First of all, it contributes to the formation of an alienated subculture in the school that wants to have nothing to do with anything that goes on in the school, but does want to have something to do with talking about, finding, purchasing, distributing and using drugs, particularly marijuana. That alienated subculture often engages in a variety of negative behaviors. So we try to treat the negative behaviors and we are only treating the symptoms of the problem when the real problem is AOD use. Anytime a school activity is held you must account for the fact that there may be some AOD use, and plan to control or prevent it.

(Speech by Mel J. Riddle to Senate Subcommittee on Alcoholism and Drug Abuse, on October 21, 1981)

AOD use also contributes to low staff morale (Tobias, 1986). Teachers, administrators and counselors attempt to deal with the problems and they experience the same kind of guilt, frustrations and anxiety that parents who have children that are abusing substances experience. Also, in that sense, AOD use is not only an individual disease and a family disease, but it is also a school
disease, because everyone in that school feels those emotions and experiences the emotional pain.

Tobias (1986) stated,

We find teachers becoming increasingly frustrated and ready to give up in terms of trying to deal with these problems because no matter what we do; we find that the problems persist—unexplainable continuation of inappropriate behavior. It is difficult for us to comprehend a rational person continuing to misbehave in the way some of these students do, so it is very frustrating to deal with that. Finally, we begin to lower our expectations, both about academic performance on the part of students and about their behavior. Students also lower their expectations about how they should behave. They begin to gauge and compare their behavior to the worst behavior in the school (p. 9).

Schools are vulnerable because drugs tend to be available wherever groups of kids congregate whether it be parties, parks, malls, or schools. Schools are especially vulnerable because kids spend large blocks of time at school and school-related activities. For users, school offers a networking opportunity. Drugs are very easy to conceal and privacy rights issues protect users.

Chemical use is initiated because of peer pressure, curiosity, availability, and its social acceptance (Tobias, 1986). It brings peer acceptance, group membership, and good times. Chemicals are shared. These factors make use spread rapidly to epidemic proportions. According to Tobias, it is more contagious in extracurricular activities because of the closely knit bonding of the participants.
Professionals estimate that 5% to 10% of adolescents are chemically dependent (Tobias, 1986). Students who are chemically dependent will find a way to use at school because it is very difficult for them to spend six to eight waking hours without any chemicals. These students cannot stop use by themselves. They pressure others to use. They need professional help beyond the educational system.

As Tobias (1986) suggests, "Educators, like parents, tend to be unfamiliar with adolescent chemical use" (p. 10). She believes that most educators have not had personal experience with AOD use nor professional training for recognition of factors associated with substance abuse. The problem has developed gradually. Behaviors resulting from chemical use are similar to, but more extreme than what is expected in adolescence. Since these exaggerated behaviors have become more common they are being accepted as normal adolescent behavior. According to Tobias, many professionals do not realize that poor motivation, low self-esteem, declining grades, skipping school, vandalism, theft, and fighting are often associated with chemical use. Many parents are reassured by school counselors that the problems they are having with their child have nothing to do with drugs, or that a little experimentation is harmless.

School administrators, counselors, teachers, and coaches often deny a drug problem. They feel that if there is AOD use in their school, classroom, or team it is their fault, or that it is a reflection of their job performance. They may agree students are using alcohol and other drugs after school hours but certainly not at school or
during school activities. Denying the problem may be easier than doing something about it. Parents and the police department are favorite blame targets of school personnel. Administrators fear that admitting a drug problem will cause panic among parents, students, teachers, or media. There is a possibility of vandalism, retaliation, and lawsuit to those exposing the problem. There may also be a fear of loss of acceptance by students or peers, loss of prestige in the community, or loss of job.

Given that there is this significant problem in schools (increased AOD use, and decreased academics), there is a need to understand more completely how socio-environmental, intrapersonal and interpersonal factors affect the use of drugs and academic performance among adolescents.

RATIONALE FOR STUDYING THE PROBLEM

Researchers have developed numerous theories of AOD use. Lettieri, Mollie and Pearson (1984) analyzed 43 of them. Murray and Perry (1985) and Newcomb and Bentler (1988) each provide analyses of smaller sets of the major theories. As Flay and Petratis (1991) conclude, "With few notable exceptions, most of these theories were derived from narrow disciplinary perspectives and on the basis of cross-sectional correlates of AOD use" (p. 82).

There is agreement on the major predictors of AOD use, and reviews of the correlates of AOD use are numerous (e.g., Flay et al. 1983; Hawkins et al. 1985; Huba, Wingard & Bentler, 1980; Jessor, 1976; Kandel, 1980, 1982; Kandel, Kessler & Margulies, 1978;
Murray & Perry, 1985). Hawkins and colleagues (1985) provide by far the most thorough and comprehensive review. However, one is struck by the large number of correlates in the absence of any theoretical framework (Shore, 1985). First, many correlates are found only in cross-sectional studies; second, there is no information about the relationships among the correlates; and third, investigators use different labels with different orientations for the same phenomenon or construct, or use the same label for different constructs or phenomena (Flay & Petraitis, 1991).

The Flay/Petraitis Model shows five classes of variables (Flay & Petraitis, 1991) that encompass the most important predictors of AOD use confirmed repeatedly in prospective studies. According to Flay and Petraitis, they are also common to the most developed and integrated theories of AOD use behavior.

The first set of variables is knowledge, attitude, and behavior (KAB) change (Flay & Petraitis, 1991). Next, and the most proximal to actual AOD use, are the intrapersonal cognitive, affective, and behavioral variables, or KAB. As Kandel (1978) notes, "These include knowledge of physiological and social consequences of use; personal beliefs (expectancies, perceived risk, and susceptibility) regarding consequences; general values (e.g., toward health and independence) and specific evaluations of these consequences; attitudes toward AOD use and related issues; behavioral intentions; trial behavior; stages of behavior (e.g., alcohol, tobacco, marijuana, and harder drugs); and established adult behavior patterns" (pp. 82-86). Flay and Petraitis attempt some integration of the numerous individual theories within their own constructs.
Flay and Petraitis indicate, "The second set of variables for which relationships to behavior are well established are the social learning variables of opportunities for observation and modeling of the behavior; opportunities to use (or availability); social normative beliefs, including collective ignorance of norms; and social reinforcement (positive and negative). Bandura (1977, 1986) and Akers, Krohn, Ianza-Kaduce and Radosevich (1979) have developed the relations among these variables from psychological and sociological perspectives, respectively" (p. 86).

Sociologists and others have established that social environment variables (third set of variables) most distal from behavior predict AOD use (Flay & Petraitis, 1991). Their research indicates the structure of the economic, legal, social, and educational systems of a society are determinants of behavior. Sociologists believe that the mechanisms through which social organization affect AOD use concern social bonding (fourth set of variables). Thus, conventional bonds with family, peers, school, and other community groups are important protection factors against AOD use.

Both sociologists and psychologists have suggested that "intrapsychic" variables might complete the link between social bonding and KAB variables (Flay & Petraitis, 1991). As Flay and Petraitis argue, "Sociologists suggest that poor family bonding leads to stress (inability to cope, rebelliousness, and risk-taking) and distress (withdrawal, self-derogation, and depression)" (p. 86). Researchers have shown a link between social stress or distress variables and substance use (e.g., Shiffman & Wills, 1985). Rhodes
and Jason (1990) illustrate the role of different stresses in their social stress model of substance abuse. On the other hand, strong family and other conventional bonding can lead to the development of positive social skills and competencies, strong self-efficacy regarding these, and high self-esteem. Psychologists have suggested that personality factors (e.g., locus of control) affect one's ability to cope with social situations and one's desire for and response to AOD use (Kaplan, Martin & Robbins, 1984).

Interactional theorists emphasize interactions between personal and environmental variables in addition to independent effects (Sadava, 1987). Protective combinations may be found by examining interactions. For example, Brook, Whiteman, Gordan and Cohen (1985) found that adolescents with poor psychological adjustment and lack of goal orientation were less at risk if their mothers were psychologically stable.

While there are obviously a variety of models proposed, according to Flay and Petraitis (1991), the above-mentioned five classes of variables seem to encompass all variables included in other broad theories. For example, Jessor and Jessor (1977), listed personality, perceived social environment, and behavior variables as all accounted for by the above domains, and the University of California at Los Angeles domain theory, likewise (Newcomb, Huba & Bentler, 1983). Another study, by Quest International (1991), developed a model examining external conditions, internal conditions, positive social behavior, and commitment and bonding.
Etiology of Drug Use

What is the value of all this theory, integrated or not? We now consider a number of functions or roles of theory in the etiology of substance abuse. The etiology of drug abuse has been studied from a number of different perspectives. Life skills or lack of life skills has been one center for research in etiology. In many cases, the lack of a skill is a cause or antecedent of substance abuse, while the ownership of the skill may provide a protective factor or resiliency for an adolescent.

Many researchers studying the etiology of substance abuse base their models on Bandura's (1977) Social Learning Theory which explains individual behavior and behavior change. Two systems of internal and external determinants are seen as interactive in their influence on behavior. Internal determinants include cognitive information processing variables, personal norms or performance standards, and motivation. External determinants involve physical and social cues and reinforces. Kandel (1980, 1982) considers the socialization aspect of behavior, but adds to the theory, the concepts of imitation, social reinforcement and selection. She views AOD use as one of many behaviors that results from interactions involving parents, peers and adolescents. She describes AOD use as one of the possible outcomes of adolescent socialization, a process which balances peer and parental influences. Kandel states two processes are central to adolescent socialization: imitation, whereby adolescents learn behaviors through observing others, in this case peers and parents; and social reinforcement,
whereby adolescents display behavior more often when it is approved by significant others, including parents.

In an earlier study, Kandel (1978) found evidence that selection also plays an important role. Socialization occurs as adolescents learn new behaviors by interacting with others. Selection occurs as they seek new friends with values and behaviors similar to their own. Kandel (1980) argues that parent and peer influences are often issue specific. For example, parental influence is stronger in relation to future roles, while peer influence is stronger in relation to the daily issues confronting the adolescent.

**Prevention Approaches**

Numerous researchers in the field have looked at the different aspects of teaching personal and social skills as a protection against the onset of AOD use (e.g., Block & Block, 1980; Bernard, 1993). These approaches are based on the postulate that the most effective approach to substance abuse prevention, utilizing school-based programs with general population groups, is to influence basic personal and social competence skills that appear to be causal factors for several different types of substance use and abuse.

Cognitive-behavioral programs (e.g., Wills & Shiffman, 1985) have examined prevention strategies having a somewhat broader focus. Instead of utilizing a substance abuse prevention strategy that teaches knowledge and skills directly related to resisting offers of substance use (i.e., strategies which are specific to substance use), these strategies target general factors thought to be linked to
subsequent substance use by teaching broad-based personal and social skills. Refusal skills and pressure resistance tactics are also taught as part of this strategy.

Thus, skills and knowledge specific to substance abuse prevention are taught within the framework of programs designed to enhance general personal and social competence. This approach evolved from a theoretical model which posits that prevention can be achieved by teaching persons to deal more effectively with general life problems (e.g., interpersonal relationships, social coping, and performance demands) and to cope effectively with specific temptations to use substances (Wills & Shiffman, 1985).

Evidence from a variety of sources suggests that social, attitudinal, and personality factors may all promote the initiation of substance use (Blum & Richards, 1979; Braucht, Follingstad & Brakarsh, 1973; Jessar, 1976; Wechsler, 1976). Social influences can originate from substance use by family members (particularly parents and older siblings) and friends, as well as from the portrayal of substance use in the popular media as something that is both acceptable and an important part of popularity, sex appeal, sophistication, success, and good times.

On an individual level, a number of psychological factors have been associated with substance use. For example, some of the psychological characteristics that have been associated with substance use/abuse include low self-esteem, a greater need for social approval, high anxiety, low assertiveness, an external locus of control, and an impatience to assume adult roles (Botvin & McAlister, 1981; Millman & Botvin, 1983).
Researchers have also found that substance users differ from non-users along several behavioral dimensions, suggesting a difference with respect to value orientation. (Demone, 1973; Wechsler & Thum, 1973). For example, Jessor (1982) stated that individuals who use drugs tend to get lower grades in school, are less likely to participate in organized extracurricular activities such as sports or clubs, and are more likely than non-users to engage in antisocial behaviors such as lying, stealing, and cheating.

As Jessor (1982) noted, the association between several types of health-compromising behavior is perhaps one of the clearest facts to have emerged from the past decade of research. The significance of this observation is that a number of problem behaviors appear to be caused by the same underlying factors. For this reason, it has been suggested that prevention programs should be developed which target the underlying determinants of several theoretically and empirically related problem behaviors (Botvin & Eng, 1982; Swisher, 1979). This postulate is the basis for the generic substance abuse prevention programs, which aim at increasing students' general personal and social competence, thereby affecting the factors that underlie many types of substance use and health-compromising behavior (Botvin & Wills, 1985).

**Prevention Strategies**

All of the newer psychosocial prevention strategies have common theoretical roots based largely on social learning theory (Bandura, 1977) and problem behavior theory (Jessor & Jessor,
From Botvin and Wills (1985) perspective, "substance use is conceptualized as a socially learned, purposive, and functional behavior which is the result of the interplay of social-environmental and personal factors" (p. 12). They believe substance use behavior, like other types of behavior, is learned through a process of modeling and reinforcement which is mediated by personal factors such as cognitions, attitudes, and beliefs.

This modeling and reinforcement process can occur in several ways. Some individuals may seek out other individuals who smoke, drink, or use drugs, or may be motivated to engage in those behaviors themselves as a way of coping with expected failure or as an alternative way of achieving some desired goal (i.e., some adolescents who are not doing well academically may begin to use drugs as an alternative means of achieving popularity, social status, or self-esteem) (Botvin & Wills, 1985). The use of tobacco, alcohol, and certain other drugs may be used in an attempt to cope with tension or anxiety, particularly social anxiety.

Other individuals may begin smoking, drinking, or using drugs after repeatedly observing high status role models engaging in these behaviors or as the result of persuasive appeals made by advertisers or peers. Differential susceptibility to social influence appears to be mediated by personality—with individuals who have low self-esteem, low self-confidence, low autonomy, and an external locus of control being more likely to succumb to these influences (Bandura, 1969; Rotter, 1972).
Social Skills

The acquisition of social skills appears to play an important role in both psychological adjustment and psychosocial development (Botvin & Wills, 1985). Botvin and Wills state that basic interpersonal skills are necessary for confident, responsive, and mutually beneficial relationships, and are perhaps among the most important skills that an individual must learn. A lack of social competence may lead to rejection and social isolation, which may in turn result in poor psychological adjustment.

According to Botvin and Wills (1985), individuals generally begin the acquisition of basic social skills during childhood, and as they mature their social skills generally increase. Botvin and Wills posit, "By the time individuals become adolescents, many have acquired a repertoire of social skills such as initiating and maintaining conversations, communicating effectively, giving and receiving compliments, refusing unreasonable requests, and expressing feelings" (p. 13). They propose that social skills, like other behaviors, are learned through a combination of modeling and reinforcement, and the development of these skills is dependent upon having the opportunity to observe and practice them. In addition to acquiring general social skills, it is important that adolescents learn the kind of refusal skills that will enable them to resist peer pressure to engage in behaviors that they might otherwise choose to avoid.

Social skills may represent the largest collection of skills which individuals need to develop in order to function effectively
as adults (Botvin & Wills, 1985). They share that it is also necessary to acquire personal skills relating to effective and responsible decision making, techniques for coping with stress and anxiety, and basic principles of personal behavior change and self-improvement.

THEORETICAL FRAMEWORK

Given that there are a variety of models of the determinants of substance abuse and the relationship to adolescent schooling, this study will attempt to develop and investigate a model developed from this diverse literature. This study will examine the impact of socio-environmental, intrapersonal and interpersonal characteristics, on their reported AOD use, and school outcomes. From the perspective of school policy, emphasis will be placed on the intrapersonal and interpersonal characteristics as socialization and healthy attitudes and values can be taught, role modeled and encouraged in the school climate. The socio-environmental factors, for example, are more difficult to influence from the school based-prevention position. The model proposed for this study incorporates these three main sets of variables. The socio-environmental set is monumental in its scope, including the community environment, geographical environment, and family environment.

The concept that behavior is heavily influenced by the characteristics of the environment is not a new idea. Lewin (1935) and Murray (1938) accepted the premise as early as the 1930s that behavior is a function of the interaction of the persona and the
environment. Murray developed the concept of "need-press" as it shaped the human personality. Murray postulated that personality is the product of dynamic interplay between internal and external need, and press which describes the environmental pressures that lead to adaptive behavior (Owens, 1995). The concepts of internal and external need have also been described as intrapersonal and interpersonal needs or skills (Goplerud, 1991).

This study will explore the factors that make up the concepts of intrapersonal and interpersonal skills. These skills, sometimes referred to as life skills (Botvin & Wills, 1985), can be recognized as risk factors or as protective factors. The specific interpersonal factors to be studied are those factors that generally fall into the realm of social skills and behavior management. These factors include general social skills, such as communicating and respecting other people's rights; bonding with peers, family, school and community; and behavioral management skills, such as appropriateness of actions.

While previous research has established that a variety of factors affect students' using drugs and resultant academic progress, the relationship among these variables is more complex than originally thought. Researchers know that socio-environmental variables affect AOD use and school outcomes. What is less clear is how intrapersonal and interpersonal variables may act as a type of "screen" between the environment and the individual's resultant behavior.

Previous research has offered relatively limited strategies for studying these factors in a multivariate setting. Past research,
therefore, has had various conceptual and methodological shortcomings that have limited its usefulness. More recently, attempts have been made to apply more sophisticated data analysis techniques such as regression analysis and path analysis, which can begin to unravel some of the complexities of relationships among variables.

Focusing on the analysis of the relationship of individual skills, both intrapersonally and interpersonally, to AOD use and school outcomes, will help to provide some answers to the relationship that this study intends to investigate. The scope of intrapersonal characteristics encompasses the individual's attitudes, self-esteem, self-control, values, decision making skills, problem solving skills, religiosity, social conformity, creativity, locus of control, and stress management. Interpersonal skills, on the other hand are more closely related to the social skills and behavioral management. Some of these are obviously learned in the home and some may be enhanced by the school.

The model will further examine how much these factors serve as protection from or risk of substance abuse (See Figure 1). Investigation of how much the life skills may affect academia, adjusting for the level of substance abuse, will also be pursued. Figure 2 illustrates the theoretical model of the relationship of socio-environment, intrapersonal, and interpersonal factors that effect reported AOD use and school outcomes. The model proposes that socio-environmental factors shape intrapersonal and interpersonal factors (e.g., Murray & Perry, 1985). In concert, these variables influence AOD use, as suggested by Murray and Perry in
their research and development of environmental models. Finally, the previous set of variables are hypothesized to influence several school outcomes.

The purpose of the model being proposed for this study is to capture as many of the variables as possible and identify these as subscales under intrapersonal and interpersonal characteristics. This study attempts to research these variables and look at their relationship to AOD use and school outcomes. Students can vary between strong and weak intrapersonal and interpersonal skills, between AOD use and abstinence, and between positive and negative indicators of school outcomes. The model acknowledges the influence of socio-environmental variables on a variety of substance abuse and school outcomes, but the focus of this research is to concentrate on the life skills that affect AOD use and school outcomes. Research such as this study can be linked to prevention programs in the schools to booster the effectiveness of life skills training and to identify which of these life skills seem to be most crucial in preventing substance abuse and promoting excellence in academic performance.

The first purpose of the study is to research the relationship between socio-environmental, intrapersonal and interpersonal factors, and AOD use (See Figure 1). The second purpose will be to investigate the relationship between AOD use and school outcomes. The third purpose will be to study the relationship of socio-environmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes (See Figure 2).
Figure 1

Theoretical Model #1
Figure 2

Theoretical Model #2
This study will attempt to answer a number of questions concerning the relationship between socio-environmental, intrapersonal and interpersonal factors, AOD use, and school outcomes. Research has shown certain factors to be risk factors and other factors to be protective or resiliency factors. This study will attempt to determine if AOD use and school outcomes are influenced by these factors and to what degree they are influenced.

The research questions are as follows:

1. Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, and reported AOD use?

2. Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, and school outcomes?

3. Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, reported AOD use, and school outcomes?

4. Which aspects of socio-environmental, intrapersonal and interpersonal characteristics are strongest and most efficient predictors of AOD use and school outcomes?

Although the influence of socio-environmental, intrapersonal and interpersonal factors on both AOD use and school outcomes is
expected to be evident, the following hypotheses are stated in the null form.

1. There is no significant relationship between the socio-environmental, intrapersonal and interpersonal characteristics, and reported AOD use.

2. There is no significant relationship between the socio-environmental, intrapersonal and interpersonal characteristics, and school outcomes.

3. There is no significant relationship between the socio-environmental, intrapersonal and interpersonal characteristics, reported AOD use, and school outcomes.

**DEFINITION OF TERMS**

**AOD:** Alcohol or other drugs.

**Socio-environmental Characteristics:** The interrelated peer, family, school and community climate and environment as factors affecting an individual. The study will include these factors as part of the theoretical model, but these factors will not be the focus of the research.

**Intrapersonal Characteristics:** These refer to the skills or deficits of self-discipline, self-control, self-esteem, problem solving and decision making skills, as well as the values and attitudes approach of an individual. Weaknesses in these areas express themselves as inability to cope with personal stresses and tensions, dishonesty with self, and the potential for use/abuse of AOD.
Interpersonal Characteristics: These refer to the skills or deficits of general socialization, bonding with peers, family, school and community, and behavior management. Weaknesses in these areas express themselves as delinquency, truancy, alienation, nonconformity, need for independence and the potential for alcohol and AOD use/abuse.

AOD Use: The use or abuse of illicit drugs and/or the use or abuse of prescription drugs. Alcohol, depressants, stimulants, marijuana or hash, inhalants, hallucinogens, cocaine and heroin are included in the survey questions asked of high school seniors.

Population to be Studied: The population studied in this research is the American high school senior. A survey entitled "Monitoring the Future," was used to gather data in a 1992 analysis of 15,000 high school seniors from across the continental United States.

School Outcomes: This refers to seven different indicators used to measure academic performance. Included in this term is scholarship, attendance, aspirations toward high school or college graduation, self-perception of intelligence, self-perception of school ability and perception of school.

Risk Factors: This describes the personal attributes or environmental characteristics that have been shown to be statistically associated with an increased risk for substance.

Protection or Resiliency Factors: This describes the personal attributes or environmental characteristics that have been
shown to be statistically associated with protection or defense from substance abuse.

LIMITATIONS OF THE STUDY

Much of the research in the AOD abuse area is cross-sectional in nature. Such a research approach is valuable in estimating prevalence and incidence rates of AOD use (Johnston et al. 1989), as well as the social, demographic, and psychosocial characteristics of those using AOD at any given point in time (Brounstein, 1989; Dembo, Schmeidler & Burgos, 1980; Kandel, 1980; Miller et al. 1983). However, because of the cross-sectional nature of the data, these studies cannot provide the needed in-depth understanding of the antecedents, mediators, or consequences of abuse (CSAP Technical Report #7). Prospective longitudinal studies provide better information regarding the latter, as well as testing causal relationships. However, the results obtained depend on the stage of development at which the youth were identified for study inclusion.

Risk factors and protective or resiliency factors are far from definitive. As Hawkins, Jenson, Catalano, and Lishner (1988) note, studies have focused on a small number of identifiable risk factors, making it difficult to gauge the contribution of risk factors in terms of both their joint determination and importance in placing an individual at risk for later AOD use. Further, some risk factors are identified as originating from the socio-environmental system, contributing to many types of problem behaviors. Delinquency and
AOD use are perhaps the best examples of two sets of antisocial behaviors having a common root.

A related issue involves the generalizability of research conducted in the juvenile AOD use arena. The question here is, to what extent are the risk factors identified for AOD abuse in the general population also risk factors for special or ethnic/racial populations and vice versa? A number of research efforts, carried out on general and special or ethnic/racial population samples, point to a common core of factors that place all youth at risk for AOD use. Longitudinal studies like that of Shedler and Block (1990) and the National Youth Survey (Elliott, 1985) follow general population samples and identify antisocial behavior and alienation as risk factors for both majority and ethnic/racial populations. Studies of special or ethnic/racial populations (Brounstein et al. 1989; Coie & Kuperschmidt, 1983; Kellam, Branch, Agrawal & Ensminger, 1975) similarly find that alienation, behavior problems in and out of school, and propensity to take risks or behave impulsively describe youth at risk. Others (Maddahian, Newcomb & Bentler, 1986) note that when social class and neighborhood variables such as earned income and drug availability are taken into account, previously identified ethnic differences between African-Americans, Caucasians, Hispanics, and Asian-Americans regarding their use of cigarettes, alcohol, and marijuana disappear.

The survey used in this analysis was "Monitoring the Future," a self-reporting survey designed for use with high school seniors. It could be argued that the National High School Senior Survey, by definition, underrepresents the poor and many ethnic/racial
populations where the school drop-out rates are larger, and a significant proportion of these populations are not even in school to be surveyed. There are critics (e.g., Stacy, Widaman, Hays, & DiMatteo, 1985) who question the validity of any self-reporting mechanism where admission of illegal activity is implicit in affirmative answers.

Bachman, Johnston and O'Malley (1991) argue that a good deal of inferential evidence exists to support the validity of the self-reporting data acquired from the "Monitoring the Future" Survey. The evidence includes some substantial and predictable relationships between self-reported drug use and attitudes about drug use. Bachman and colleagues support their position by citing a number of methodological studies using fictitious drugs in questionnaires to test the validity of the self-reported drug use. Bachman et al. state the responses to survey questions regarding friend's use of drugs parallels very closely the trends in self-reported use.

An area of increasing amounts of research is the developmental theory of AOD use. This study does not attempt to measure the influence of developmental stages directly, but acknowledges their existence and recognizes that the developmental stages directly affect the level of intrapersonal and interpersonal skills.
CHAPTER II. REVIEW OF THE LITERATURE

CONCEPTUALIZATION OF THE RESEARCH PROBLEM

Schools are continually compelled to improve student outcomes in response to the demands of the society, which are political, economic and social in nature. Reform efforts have been underway for a number years in response to the national call for improved academic achievement. During the last five years an ever increasing call has been resounded for less violence in the schools. A number of studies correlate violence and delinquency to AOD use (Elliot, Huizinga & Ageton, 1985; Rutter & Giller, 1983; Levine, 1985). Over the last ten year period an increasing effort to prevent substance abuse has been mounted by the federal government, states, communities and schools. A large number of studies have attempted to identify a set of factors that produces positive school outcomes. Other studies have researched the influence of AOD use on grades. Few studies have analyzed the influence of the combination of personality factors, social skills, demographics, and environmental influences, along with the use or non-use of drugs in ultimately analyzing school outcomes. A brief review of current literature on these factors will be included in this chapter.
ADOLESCENCE

Adolescence is a time of change. The extensive literature on this life stage underlines both the complexity and importance of this period. For example, Havighurst (1972) describes the developmental tasks associated with adolescence from a socially defined viewpoint. These tasks include: establishing autonomy and sense of self, separating from the family, leaving school, and selecting a career. Piaget (1932) describes the shift or growth in cognition from literal thought to that which is more abstract and hypothetical. Likewise, moral reasoning changes from more absolute, personal appraisals, to those which are more relative and universalistic (Murray & Perry, 1985). These changes are not synchronous relative to physical changes. As a result, even though adolescence is a time of change, how and when that change occurs differs markedly among individuals and among the types of change that occur within individuals.

Significant social-environmental changes also have been noted during adolescence (Kumpfer & Turner, 1990). Many are a direct result of physiological developments, while other changes are determined environmentally. The increasing importance of peers relative to family is one of the most critical areas of social change. With this shift comes the possibility of new and influential role models and the potential for discord when values of peers and parents conflict. A major environmental change is entry into middle school and high school, which presents adolescents not only with multiple teachers and peers, but also with a less controlled,
less personal environment. As a result, students in secondary schools have more opportunities to talk about and engage in AOD use behaviors. Who are these students? These students are adolescents.

Until the last ten years, young adolescents were referred to as "inbetweeners," not quite teenagers, yet not quite children. Research and programs related specifically to this age group were hard to find. Young adolescents were underserved, and parents and professionals were relatively unaware of their unique needs (Quest International, 1991). Fortunately, that situation has begun to change as parents, educators, and policy makers have become more knowledgeable about this special period of life. Research has found that early adolescence is actually a clearly defined stage of development, with its own specific changes and developmental tasks. It begins just prior to the onset of puberty and extends through the early years of adolescence, roughly from the ages of 10 to 14. Middle and late adolescence fit into the 15 to 16 and 17 to 19 year old age range. Research and knowledge about adolescence is key to the holistic picture of the etiology of substance abuse. The descriptors of adolescence also play into the total scope of the indicators of academic success or failure. The literature on adolescence is reviewed to help explain the model used for this study.

According to the authors of the Quest Program (1991), the changes young people experience during adolescence fall into four major areas of development: physical, intellectual, social, and emotional.
Physical Development

The 10-to-14-year-old experiences more rapid growth and development than at any other stage of life, except infancy. This growth starts slowly and then progresses quickly. Most girls begin their growth spurt around the age of 10, with the most rapid growth occurring between their thirteenth and fourteenth birthdays. A girl may grow three inches taller, gain 10 to 15 pounds, lose baby fat and acquire feminine curves—all in a four-month span. Three-quarters of all girls begin to menstruate by the age of 14. Over the last century, the average age of first menstruation has dropped from 17 to 13 and is still dropping (OSAP, 1991).

Boys' growth spurts typically begin around the age of 12 and may continue through their fifteenth birthday or even later. They may grow three inches and add 20 pounds in a four or five month period. According to Kerewsky (1991), the onset of puberty is not as clearly marked as it is in girls, boys suddenly sprout downy facial hair and have to cope with a voice that can change several octaves in one sentence.

For both boys and girls, the arms and legs are the first parts of the body to reach their full growth. While the rest of the body, including the muscles, hurries to catch up, awkwardness typically is a characteristic. Because of their different rates of maturation, boys and girls may not reach equal stages of development until they are sixteen (OSAP, 1991).
Children's bones and muscles grow at different rates during early adolescence, which makes it difficult for them to sit still for long periods of time. They actually do have "growing pains." This is one of the reasons they may assume strange positions while reading, socializing with friends, or talking on the telephone (Office for Substance Abuse Prevention, 1991). It is also one of the reasons they find opportunities at school or at church to get up and walk around.

As young people reach middle adolescence, their rate of growth slows down. By age 14, girls have reached 98 percent of their adult height and boys 90 percent (Quest, 1991). Many young adolescents experience a great deal of anxiety as they compare their physical development to that of their peers. Just when sameness is their goal, variation is the norm.

**Intellectual Development**

Thinking also changes in early adolescence. Children enter this period needing concrete objects and pictures to help them think, but between the ages of 10 and 12 they gradually learn to substitute words and ideas for concrete props and become more abstract in their cognitive abilities (Quest, 1991). They learn to see relationships between ideas and are able to go beyond a literal interpretation of what they hear and read. Young adolescents are able to think about thoughts, consider what might happen in the future, and better understand the viewpoints of others.
During early adolescence, young people learn to generalize, applying ideas and strategies to a range of situations. By age 11, young people are usually able to order and organize information in their minds. Within a year or two after that, they learn to reason deductively and develop stronger problem-solving skills.

By 7th or 8th grade, children begin to assume personal responsibility for their own learning (Berla & Henderson, 1991). Although their interests come and go, they begin making important decisions about careers, behavior, and their intellectual worth. They are easily discouraged if they do not achieve their aims.

Social Development

Adolescent friendships are often fickle. Many adolescents, eager to develop new relationships, leave old friends behind. These friends may blame themselves when relationships they have had for years come to an end. Children at this age are especially sensitive to the changing nature of friendship. Forming friendships and belonging to peer groups is an essential developmental task for young adolescents (Berla & Henderson, 1991). It helps them feel accepted by others at this time of intense change and gives them confidence to develop some independence from their families.

Although the "herd instinct" is strong, it is not unusual for a child to feel that he or she has no friends. Feelings of being excluded may cause the child to be withdrawn and sad or to act out and be aggressive. Some children find it hard to make friends.
because they are shy or because they look or act different from most of their classmates.

As their allegiance begins to transfer from their families to their peer group, rejection by the peer group becomes a failure to avoid at all costs. When young people enter early adolescence their friends are usually of the same sex, but by grade 7 or 8, some form friendships with the opposite sex.

Berla and Henderson (1991) note that as adolescence children strengthen their social skills, through interaction with friends of both sexes, they tend to become more self-reliant and want less parental control. They are often critical toward their parents and toward society in general. At about age 13, many of these youngsters appear to be indifferent to adults, especially teachers and parents. They are more concerned with presenting a positive image toward their friends.

Although peer influence increases, and parent influence decreases in early adolescence, research indicates that at no point during this period is peer influence more important than the influence of the family (Berla & Henderson, 1991). Young adolescents still need continued guidance and emotional support from their parents and other adults, even while they are becoming more independent and autonomous. Young adolescents often become preoccupied with their appearance. They strive to fit a stereotype of what a person their age "should" look like. This stereotypical image which tends to "emphasize maturity and is strongly promoted by clothing and cosmetic advertisers, often causes great
anxiety for young people who feel they do not fit the image" (Quest, 1991, p. 11).

**Emotional Development**

Due to the numerous changes and conflicts they are experiencing, young adolescents' self-confidence can be fragile. Their feelings are easily hurt and their emotions may move quickly from high to low. During early adolescence "likes" rapidly become "dislikes," and vice-versa. Quest (1991) provided the following example of emotional change by stating, "The young person who on Saturday rejects any attempt to involve him or her in family activities may complain on Sunday that the family does not do enough together" (p. 11). Some of the hormones that cause the physical changes of adolescence contribute to these emotional ups and downs. Adolescents have emotional concerns about their body changes. They are confused about what is happening to them physically, so they tend to react very strongly to anything that has to do with their sexual growth. They are just as embarrassed about maturing too quickly as they are about growing too slowly.

Young people often feel they are at the mercy of suddenly uncontrollable emotions. They may have outbursts of crying, fighting, or swearing at inappropriate times. They are usually embarrassed by these episodes, but feel honor bound not to admit any wrongdoing. Children between the ages of 10 and 14 have a lot of anxiety, are easily angered, and take longer to recover from emotional outbursts than when they were younger (Berla &
Henderson, 1991). They are trying to figure out who they are, and they often do not like the looks of the person they see in the mirror. Many also are living with very high levels of stress with which they have few coping skills.

Unless they have an opportunity to learn how to manage the emotional changes they are experiencing, their transition from child to adulthood may include a great deal of unnecessary suffering. Physical, intellectual, social and emotional changes take place simultaneously. The response of each young adolescent cannot be easily predicted, according to Quest (1991), "for it is complicated by the interaction of his or her own personality; the influence of family, peers, and school; and the frequent occurrence during this same period of major life events such as moving to a new area or the divorce of ones parents" (p. 11). The result can be multiple sources of conflict for the young adolescent and a true challenge for the classroom teacher. The needs of students during this period go beyond academic learning.

What Is "normal" behavior in this age group? Berla and Henderson (1991) propose that many of the contradictions, contrasts, and conflicts seen in young teens and preteens are quite normal. They state, "As they grow, they are experiencing changes on all fronts—in the way they learn, feel, look, and deal with other people. These major changes, along with the pressures of today's society, place most early adolescents under a great deal of stress" (p. 3).

According to Kerewsky (1991), there is no "typical" early adolescent—every child is an individual with strengths, weaknesses,
and attractive and irritating qualities. He describes young teens as self-absorbed. Kerewsky posits, "It is important for them to find out who they are and what they can do, apart from their families. Although they are most interested in themselves, they are also very occupied with their friends and vulnerable to pressure from the group. A delicate balance must be struck between honoring the importance of their friends and asserting adult responsibilities" (p. 4).

Parents of young adolescents worry that their children will reject family moral and social values, as they question everything from religion to table manners. This fear is especially strong among families new to this country (Kerewsky, 1991). Parents see their children living by one set of standards at home and another at school and with their friends, which may cause conflicts at home and at school (Berla & Henderson, 1991). The child from a different culture has a doubly hard time developing a personal identity and meeting expectations of parents, teachers, and the community.

Some members of this age group believe everything would be just fine if only they had the right clothes, hairstyle, and talent (Quest, 1991). They still have individuality, but they do not wish to be separated too far from the crowd. As they mature, they will value individuality and recognize personal accomplishment.

The high-energy/low-energy cycle often appears in this age group. Early adolescents have a great deal of physical and emotional energy and are capable of being very productive. They also may have periods of unproductive behavior as far as adults can tell.
Adults may fear their high energy level and become impatient with their low energy cycle (Berla & Henderson, 1991).

This is a time in their lives when they feel almost immortal, consequently risk taking behavior is often observed (Kerewsky, 1991). Although they worry about what their friends think about them and about who is going to say what about them at the school dance, they do not believe that they are physically in much danger in the world. In the last few years this previously held thought has been challenged by violence in schools (Wimes, 1993). Wimes conducted a survey that "quantifies for the first time how AOD use is related to school violence, vandalism, truancy and other concerns not usually considered drug problems" (p. 6).

Just a couple of generations ago, risk taking at age 12 or 13 meant using an occasional bad word, perhaps smoking a cigarette, or misbehaving in school. Now, risk taking might involve the use of alcohol and other drugs, sexual activity for which teens are not emotionally or intellectually prepared, or antisocial behavior, such as shoplifting or vandalism, which leads to trouble with the law.

Psychologists and sociologists say that when individual families fail to establish hard-and-fast rules at home, they are also unlikely to join around standards for the whole community (Harris, 1991). When collective community standards erode and neighborhoods become less cohesive, parents have less ability to affect the values that their children will encounter in the popular culture.

Some adolescents feel unworthy and unattractive. They become upset and depressed because they must rely on people in
whom they have little trust. Although they strive for independence and self-sufficiency, they feel that they cannot manage completely on their own, even though many are called upon to do so.

Berla and Henderson, (1991) commented on a "Catch 22" situation for adolescents when they stated, "When they try to pursue adult activities, we tell them that they are too young; when they act their age, we tell them to stop behaving like children" (p. 7). They also commented that today's technology has made youngsters this age feel even less valuable than those of previous generations.

Some children worry a lot about schoolwork, tests, and report cards (Berla & Henderson, 1991). The researchers state, "Along with their worrying, they may assume an I don't care attitude. This is usually just a way to defend themselves, pretending that things that mean a lot to them, really do not matter so much." (p. 7)

Adolescence is a time period when children become concerned with the standards set by their friends. They show independence in their choice of friends and are very loyal to their group. When parents are unhappy about these friendships, children this age may insist on their right to choose the people with whom they are going to associate. They may change friends frequently, depending on the pressures from different groups and their shifting interests, needs, and wishes.

They have a growing interest in privacy. They crave time alone, to balance the time they spend with their friends. Berla and Henderson (1991) studies show that beginning at about age eleven or twelve, many early adolescents spend a lot of time on the
telephone with their friends or "hanging out" with them. Many are beginning to show interest in the opposite sex, which takes the form of teasing. Many of them are quite fearful of society's expectations for sexual roles and socializing.

Early adolescent youngsters are trying to find their own values, apart from those held by their families. This often means a testing of boundaries. Sometimes these are about bedtimes, parties, curfews, language, or rules; sometimes, they have to do with the family's or community's beliefs. Adults' standards for behavior are often ignored, questioned, or defied.

Children at this age begin to have real conflicts about right and wrong. They are not used to making difficult choices, and they have a hard time comprehending "shades of gray." A simple "yes" or "no" is much easier for them to take than a "maybe," which may leave them confused.

At about age 12 or 13, youngsters begin to experiment with different attitudes, beliefs, and emotions (Kerewsky, 1991). They often are interested in the religious ideas of others, but have difficulty understanding how anybody different can believe "something that dumb." They also begin to realize that there is a world out there that is not like their own. Because they are questioning everything about themselves, they also question things that in earlier years they accepted as true.

Children of this age have very high ideals, and they are looking for love, beauty, and justice (Berla & Henderson, 1991). They become better at seeing the world more critically, but they
often are not able to be objective; they still see everything through
the filter of their own personalities and their immediate needs.

Berla and Henderson's (1991) studies propose that schools
across the country have found that they must compensate for what
children are not getting at home before they can even begin the
learning process. That can mean supplying everything from the
morning meal to drug counseling to medical care to day care—and
sometimes even to day care for the students' own children.

Jane Flanders, a counselor at Emily and Jarod's school, said
"many parents don't know how to deal with their own problems, so
they become the children's problems. The parents are not coping,
so neither do the children. We have a generation of parents who do
not set limits, do not follow through, who are not being firm
enough. These kids run over their parents" (Harris, 1991).

Harris (1991) posits, "educators say they find today's
children more street smart and less book smart. Psychiatrists and
teachers say they are more responsible—but largely because, in a
world where they must more often fend for themselves, they have
to be" (p. C2).

Adolescents often have confusing feelings about their
identities, they often seek a more active religious involvement, to
establish some sense of belonging to a group and being with people
who share the same ideas. Religion, with its rituals, allows them to
feel part of something bigger than their own family and neighbor-
hood, and these activities give them a structure through which they
attempt to find more meaning in life.
Kerewsky (1991) shares that discussion of the characteristics of a group of people, such as young adolescents, must "be tempered with an understanding that ours is a diverse and changing society" (p. 13). There is a lot of talk about "at-risk" children or stated alternatively, children who come from high risk environments. These are often the children of poverty, children who come from families that do not support growth in self-esteem, children who live in physical danger, and children who experience little or no success in school. These adolescents often have no sense of a positive future. Kerewsky contends they become "involved with alcohol and other drugs, have children of their own, experience difficulty with the legal system, and carry a sad, hopeless existence into another generation" (p. 13).

Given the above description of behaviors often associated with adolescents, one can begin to understand the percentages of youths in the schools who for one reason or another are "at risk" for alcohol or other AOD use (AOD). Risk factors are the personal attributes or environmental characteristics that exist before alcohol and other drug (AOD) abuse begins and have been shown to be statistically associated with an increased risk for abuse (Hawkins et al. 1991). According to CSAP Tech. report No. 7 (1993), "individual risk factors" are the personal attributes or environmental characteristics that have been shown to be statistically associated with an increased risk for alcohol and other drug abuse.

Admittedly, the individual's characteristics (including attitudes, perceptions, behaviors, and skills) have largely been formed through his or her interaction with family, friends, social
institutions, and the physical environment" (p. 1). Numerous studies have correlated risk factors to substance abuse (e.g., Schecter, 1991; Hawkins, 1986; Jessor, 1979). Studies now have identified a wide range of factors which heighten the risk of alcohol and other AOD use (Kandal, 1982; Hawkins et al. 1985; Newcomb et al. 1988).

VARIABLES INFLUENCING AOD USE AND SCHOOL OUTCOMES

Numerous methods of classifying those variables that influence AOD use and school outcomes have been developed by researchers in the field. Historically, one of the most common domains to be recognized was that of risk factors. For the most part, risk factors can, in turn, be categorized into socio-environmental, intrapersonal and interpersonal characteristics.

According to Schecter (1991), the three major categories of risk factors referred to in research are biological, demographic and psychosocial/environmental. Schecter describes the influences and risk factors as a progression. She proposes, "they begin with biological vulnerabilities and family influences at the earliest stages of development, then move into the influence of school and peers, and finally to those demographic and external community conditions that affect the young person" (p. 7).

One of the factors least likely to be controlled by the adolescent is the genetic component. A growing body of knowledge suggests there may be genetic links to criminality, alcoholism,
delinquency and drug addiction (e.g., Schecter, 1991; Rutter & Giller, 1983; Levine, 1985). Physiologically and genetically determined predispositions have been related to a host of risk factors, including delinquency and AOD abuse (CSAP Tech Report #7, 1993). For example, Rutter and Giller (1983) and others (e.g., Levine, 1985; Mednick, Volavka, Gabrielli & Itil, 1981) demonstrated that, compared with non delinquents, serious delinquents (i.e., repeat offenders or those committing serious/index offenses) exhibit depressed levels of autonomic and central nervous system arousal. This decreased arousal may lead to increased sensation seeking, including criminal acts and AOD use (Zuckerman, 1987).

These findings dovetail with both self-reports and personality profiles of AOD users and delinquents who manifest decreased levels of harm avoidance (e.g., Cloninger, Sigvardsson & Bohman, 1988), increased propensities to take risks or behave impulsively (e.g., White, Pandina & LaGrange, 1987), and aggressive behavior (e.g., Tabakoff & Hoffman, 1988). Similarly, others (e.g., Bates, Labouvie & White, 1986; Spotts & Shontz, 1984) find that adolescents scoring high on sensation-seeking scales were far more likely to use a variety of drugs than their counterparts who score lower.

Taken together, these data provide strong evidence that genetically or biologically based predispositions to AOD abuse exist (CSAP Tech Report #7, 1993). It is worth noting that these biologically based predispositions can also work to thwart AOD abuse. For example, the report notes that an individual born alcohol intolerant is unlikely to become an alcoholic. Further, when
growing up, initial noxious experiences with alcohol might deter the youth from experimenting or abusing other drugs.

The report (CSAP Tech Report #7, 1993) gives examples of childhood hyperactivity and attention deficit disorder (ADD) as two of several biologically based disorders that affect learning and interaction. Both have been linked to the expression of antisocial behavior. Researchers (Loney, Kramer & Milich, 1979) found that, when linked with aggressive behavior, childhood hyperactivity and ADD increase the risk of delinquent behavior. Others (Gittelman, Mannuzza & Bonagura, 1985) found that hyperactivity and ADD increase the risk of teen AOD use problems. Gittelman and colleagues found that on the positive side, learning disorders and skills deficits, such as hyperactivity and ADD, have been destigmatized.

According to Fetro (1991), risk factors are not causal factors. An adolescent who has one or more risk factors will not necessarily become a substance user, although the chances are greater. Fetro organizes the risk factors for substance abuse into five categories: individual, family, school, peer group and community.

Fetro (1991) recognizes individual factors to include attitudes, beliefs and personality traits. His studies have shown that an adolescent's attitudes toward substance use (approval versus disapproval) and his/her early experimentation with substances may lead to more extensive involvement in later adolescence. In addition, he states early antisocial behavior, hyperactivity, alienation and rebelliousness are directly related to adolescent substance use. In general, however, he found that individual
factors are less predictive than social environmental factors (i.e.,
family, school, peer group and community).

**Socio-environmental**

The group of socio-environmental variables is unlimited in
scope. The following discussion includes those variables that are
considered to be most influential on an adolescents use of AOD and
their school outcomes. Demographics are included in this construct.

**Family**

The early influences of the family, whether nuclear, blended
or extended, are considered of primary importance in developing
an individual's attitudes, values, and abilities to cope with the
stresses and decisions of life, including alcohol or other AOD use.
This is an example of how socio-environmental factors influence the
intrapersonal skills of an adolescent.

The numerous family influences stated by Schecter (1991)
include parental and sibling alcohol and other AOD use and
attitudes about drugs. Numerous studies show parental and sibling
use of alcohol and other drugs is an important risk factor. This may
be due to the early development of values and attitudes that say
AOD use is "OK"

Negative parent-child interactions or poor family
management includes several key components including
inconsistent or excessively severe or lenient discipline practices;
lack of caring and family attachment; and lack of positive adult role
models. The quality of family relationships and closeness have
been found to prevent involvement in AOD use by children, even in those families where some AOD use is present. This is particularly true, according to Schecter (1991), for ethnic families, where studies show that parental influences are more important for these youth than peer influences. Hawkins (1986) confirms that family structure is less important than attachment and closeness of the family. Schecter emphasizes the negative effect of low educational expectancies from the family or important others. The family promotes early values which can determine whether or not the child will have a commitment and positive attitude toward school. If parental expectations for academic success are low, then the child will most likely be less motivated to do well in school.

Family history of chemical dependency has been shown to be one of the strongest factors in AOD use. This influence may be linked to an increase in the child's genetic vulnerability towards chemical dependency. According to Schecter (1991), this type of family history may also contribute to a "fatalistic" attitude or sense of hopelessness on the part of the parents, school and community members toward drug problems.

Fetro (1991) looks at family factors associated with adolescent substance use in a slightly different perspective. He describes family risk factors as family management problems (e.g., poorly defined rules, inconsistent or excessive discipline, poor communication), low or unrealistic expectations from parents, and lack of involvement in family activities. These factors, combined with positive family attitudes toward substance use and a family
history of alcoholism, provide unclear family guidelines for acceptable and unacceptable behavior.

Just about everything that happens in the home affects a child's later development, including AOD use. One aspect of home life and child rearing that has recently come under close scrutiny is physical abuse. As does parental AOD abuse, physical abuse of a mate or child speaks directly to fundamental family dysfunction. Schecter (1991) posits that such dysfunction can scar a child in many ways, by teaching him or her hopelessness and helplessness, or by starting a process of self-derogation from which escape is impossible. Physical abuse might send its victim into a life of AOD use, if only to forget the pain. The earlier the abuse starts, the more likely that the effects of the abuse will taint the way the individual views the world. At this point, the experience of abuse becomes a personal dispositional characteristic that influences the way the individual perceives and responds to all the daily transactions of living.

Physical and sexual abuse are related to the use of illicit drugs (Schecter, 1991). Conceptually, the instances of abuse lead to both physical and psychological pain, which, in turn, leads to a number of poor developmental outcomes, including aggressive and abusive responses, depression, delinquency, and AOD abuse.

According to Schecter (1991), factors in the social environment that are associated with increased AOD use include family or peer approval or tolerance of AOD use, family or peers as real or perceived models for AOD use, pressure from family or peers to use drugs, low educational aspiration for the children by
parents, lack of parental involvement in the child's activities, weak parental controls and discipline generally, and ready access to drugs. Schecter confirms that these associations are fairly constant across gender and ethnic groups, with only a few exceptions.

Resiliency is a term describing the identified factors that protect young people from alcohol and other drug problems (Perry, 1986; Hawkins et al. 1985). The researchers listed positive early childhood interactions; available emotional support and council through extended family or neighborhood, school, or church; access to special services; and close friends, as resiliency factors. Goplerud (1989) states that the resilient children have access to natural, caring support systems within their nuclear family or alternatively, among peers or among trusted community members such as ministers or teachers. Rhodes and Jason (1990) developed a social stress model which provides a framework for detecting protective factors that may contribute to adolescents' resiliency when confronted with compelling influences to engage in substance abuse.

Religiosity

Lack of clear rules, norms and culture is also a socio-environmental variable. A lack of clear rules and norms about AOD use leaves young people not knowing what their families expect of them. Low religiosity or lack of family rituals has been shown to correlate to higher rates of alcohol and other drug problems (Schecter, 1991). She went on to explain that family rituals need not be in a religious context, but that of providing consistency and a
means for attachment and bonding to the family (e.g., nightly family meals or weekly family outings).

**Peer Pressure**

Jessor (1979), in his research on peer pressure, found females may be more susceptible to peer influences than males. There is also evidence that many of these correlates predict future AOD use and that their predictive value varies with usage of different drugs (e.g., Huba & Bentler, 1982; Kandel et al. 1978). Jessor's identified social-environmental antecedents suggest that future AOD users exist in an environment characterized by multiple models for AOD use, by significant others who tolerate or encourage AOD use, and by ready availability of drugs. Jessor posits adolescents who spend most of their free time with peers are more likely to experience such an environment than those who spend their free time with their family or alone.

Schecter (1991) combines school and peer influences/risk factors in her literature review since the majority of peer interactions in a young person's life take place in the school setting. Peer influences seen in school can also be transferred to the neighborhood, community center or church. According to Schecter, the major school and peer influences/risk factor is association with drug-using peers. Peers who use drugs and approve of their use are one of the strongest predictors of later AOD use, particularly for initiation into gateway drugs. Fetro (1991) confirms by stating that peer use of substances and positive attitudes toward substance use are two of the strongest risk factors for adolescent substance use. Oetting and Beauvais (1987) present peer influence as it relates to a
dynamic, active "peer cluster" whose members are actively involved in defining and making AOD use a normal part of their activities. Peer clusters in general are small, tight, homogeneous groupings of peers whose closely shared attitudes, values and beliefs define the group. These are the closest friends, the "soul mates" who share intimate time together. The defining characteristics of the members include reliance on peers, rather than parents. Young people who rely more on their peers for support, information, and behavioral cues tend to follow the behavior of the peer group.

School
Lack of clear school politics regarding substance use encourages AOD use. The school must establish clear rules and norms regarding alcohol and other AOD use. School management problems (e.g., poorly defined policies about substance use, inconsistent discipline) and availability of substances on school campuses can give inconsistent messages about acceptable behavior (Fetro, 1991).

Educational Expectations
Young people who enter school with low family or personal expectations to succeed in school, in combination with other risk factors, may end up with low academic performance. Schecter (1991) notes a whole variety of antisocial and problem behaviors, such as aggression, rebelliousness, truancy and delinquency; part of which, or all, can lead to or are related to this one risk factor. Fetro (1991) states that poor school performance is a common antecedent of substance use. Whether a result of a learning disability,
boredom, lack of commitment or lack of involvement, an adolescent who is failing academically is at greater risk of beginning to use substances and subsequent heavy substance use.

Community

The community may have a strong influence as a risk factor of AOD. Schecter (1991) contends that the community and its cultural context reinforce and provide many of the values, norms and standards of behavior, and the messages young people receive about alcohol and other drugs. Those who live in communities, where alcohol and other drugs are readily available, promoted, or used, are more likely to use them. In addition, Fetro (1991) lists community factors such as limited opportunities for involvement, employment and success as factors which may put adolescents at risk for substance use.

The key influences/risk factors found in communities, according to Schecter (1991), include lack of positive community norms and values, and general community disorganization. These can include pro-drug attitudes and practices, and conflicting or lack of cultural messages.

High availability, advertising, and low cost of tobacco, alcohol and other drugs in a community constitute a negative socio-environmental effect. Large numbers of liquor stores and bars, particularly in ethnic communities, provide easy access to alcohol. Heavy advertising of alcohol and tobacco products in the community can send favorable images regarding their use to impressionable young minds. Widespread drug trafficking also tends to teach young children that such behavior is acceptable.
Lack of meaningful life roles and role models in the community is another risk factor for AOD use. Researchers have said it is important for young people to learn life skills and have opportunities to be responsible and serve others in the community (Schecter, 1991).

**Economy**

Economy, social deprivation and oppression are risk factors that have been found to combine with other problem behaviors, including delinquency, low self-esteem, alienation and isolation, which may lead to future involvement with drugs.

**Age**

Which age group of adolescents is more involved in AOD? According to Schecter (1991), both the probability and the extent of AOD use increase as a function of age during adolescence. Schecter confirms that other demographic factors, such as gender, ethnicity, and socioeconomic status are also strongly correlated or related to alcohol and other AOD use. Fetro's (1991) research indicates age and gender are the only demographic variables that appear to predict substance use.

**Gender**

Kumpfer (1990) posits that prevalence and use studies show males tend to use alcohol and drugs more often than females, with the exception of nicotine and stimulants. According to Kumpfer, this gender difference is most pronounced for heavy use of legal and illegal drugs.
Geographic Region

Studies by Schecter (1991) indicate that both geographic region and population density are correlated with the prevalence of adolescent AOD use, though ethnicity and socioeconomic status are only weakly correlated with prevalence. Her research indicates that demographic factors other than age and gender account for little additional variance in predicting future adolescent AOD use after social-environmental, intrapersonal and behavioral factors are considered.

Intrapersonal Characteristics

Intrapersonal factors are those skills or factors encompassing the individual's attitudes, self-esteem, self-control, values, decision-making skills, problem-solving skills, religiosity, rebelliousness, social conformity, creativity, locus of control, and stress management.

Attitudes

One of the most powerful intrapersonal factors is that of attitude (CSAP Tech Report #7, 1993). Attitudes comprise our beliefs, feelings, and behavioral predispositions concerning persons, places, processes, events or situations. Although attitudes are sometimes poor predictors of behavior, they are, in general, related to our behaviors. Research has identified a number of attitudinal measures that seem to be positively related to actual AOD use (e.g., Elliott, Huizinga & Menard, 1985 1989; Kandel, 1978; Johnston et al. 1986).
Personal attitudes develop through experience. Thus, an individual's attitudes are in part dependent on those held by others in the family, school, and community at large. Research on these topics indicates that adolescent AOD use is greater in communities where AOD use is condoned (e.g., Coate & Grossman, 1985), in schools where the norms condone AOD use (e.g., Baumrind, 1985), and in families where AOD use is accepted (Kumpfer, 1987). This research exemplifies the close tie between socio-environmental characteristics and intrapersonal characteristics.

One of the most consistent findings in the literature, relating individual attitudes to AOD use, is that a youth's permissive attitude toward AOD experimentation or use, is related to the youth's actual use of AODs (Brounstein et al. 1989; Johnston et al. 1986; Kandel, 1978). In addition to attitudes directly related to AOD use, attitude toward other deviant or antisocial behaviors have been shown to be related to AOD use. Elliott and his colleagues (1989) demonstrated that later AOD use is lower among youth who believe it is morally wrong for themselves or their peers to commit an illegal act or to violate rules.

Other researchers (e.g., Brounstein et al. 1989; Johnston et al. 1986) have found that sharing the same values or attitudes about important things in life, with parents, rather than with peers, is inversely related to AOD use. Taken together, these data indicate that youth who have internalized attitudes similar to those held by mainstream adult society are at lower risk of AOD use, whereas those who have substituted peers for parents and show disdain for traditional values are more likely to engage in AOD use.
**Self-esteem**

An attitude toward yourself can be described as one's self-esteem. Kaplan (1982) studied self-esteem in adolescents. He found where the loss of self-esteem is strong, the individual may reject the peer group, associated institutions, and standards because they are associated with the negative self-feelings. Since behaviors associated with traditional society have failed, deviant behaviors are tried in an effort to improve self-esteem. According to Kaplan deviant behavior is seen as a mechanism to improve self-esteem which was lost through poor early experiences with a traditional peer group.

**Personality**

The personality system, according to Murray and Perry (1985), includes three major structures: The motivational-instigation structure is concerned with the individual's sources of motivation and includes the goals of academic achievement, independence, and peer affection, as well as the expectation for achieving each of these goals. The relative value of achievement versus independence is also considered. The personal belief structure is concerned with the cognitive controls that inhibit problem behavior and includes the variables of social criticism, alienation, self-esteem, and internal/external locus of control. The personal control structure is similar to the personal belief structure in providing controls on problem behavior, but does so in a more direct manner through the variables of deviance, tolerance, religiosity, and the discrepancy between positive and negative functions of problem behaviors.

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**Personal Dispositions**

Personal dispositions are the way a person characteristically responds to others or to situations. As suggested by the term itself, these characteristic response patterns are assumed to be long-lived. They may have their roots in an individual's genetic makeup, but it is certain that they are modified through experience and growth (CSAP Tech Report #7, 1993). As such, they serve as potentially useful markers designating areas of individual risk for AOD use.

Personal disposition relates to the perceived environment as well as the real environment. Murray and Perry (1985) describe the perceived environment as separated into proximal and distal structures composed of variables that are related to problem behaviors such as AOD use. According to Murray and Perry, six variables are within the distal structure: perceived support from parents and from peers, perceived controls from parents and from friends, compatibility between parents and peers in their expectations for behavior, and the relative influence of peers versus parents. The proximal structure includes parent and peer approval for problem behavior and peer models for problem behavior.

According to Garmezy et al. (1984), children develop personality disposition factors (protective factors) that help children cope. These include:

1) Effectiveness in work, play and love: These resilient children work well, play well and love well. They make positive friendships and do well in school.
2) Health expectancies and a positive outlook: They tend to have realistic goals for themselves.

3) Self-esteem and internal sense of control: They experience feelings of self-worth and self-competence and feel a sense of control over their own lives.

4) Self-discipline: They are able to delay gratification, control impulses and maintain a future orientation.

5) Problem-solving/critical thinking skills: They can think more abstractly, can reflect on ideas, are flexible in their thinking and can propose alternate solutions to cognitive and social problems.

6) Humor: They can laugh and be amused about themselves, others and the world around them.

Skills Deficits

Skills deficits may be physiologically based or may be the result of never having learned how to approach a specific task or solve a particular type of problem (CSAP Tech Report #7, 1993). However, the lack of certain life skills can lead to interpersonal or emotional difficulties or problems with institutions. Such problems may influence AOD abuse or initiate a process in which the person seeks support in groups or activities that encourage AOD abuse.

Skills deficits resulting from the lack of social or personal resources may be far more difficult to treat than biologically based skills deficits (CSAP Tech Report #7, 1993). First, the report shares that the number of youth afflicted is far greater than the number suffering from biologically based skills deficits. Second, these children, by definition, lack the social resources needed to ensure that they can overcome these initial deficits.
If the school is not providing some instruction in basic problem solving, coping, and refusal skills, young people may not learn these skills anywhere else (Schecter, 1991). The school is the most likely setting for providing structured lessons in life skills. This statement reinforces the choice of studying intrapersonal and interpersonal factors as they relate to AOD use and school outcomes, in that these skills can best be taught in the schools.

AOD use may be initially selected as the coping response of choice because other coping skills are not in place. Later, it may be evoked out of habit or because it delivers a sense of predictability or control. The missing coping responses can be classified either as cognitive-behavioral skills (such as problem solving or decision making skills) or temptation-refusal skills (including peer or social resistance skills) (CSAP Tech Report #7, 1993).

According to Murray and Perry (1985), intrapersonal factors that are associated with AOD use include greater value on independence, lower value on achievement, lower expectations for academic achievement, greater tolerance of deviant behavior, lower religiosity, greater criticism of social institutions, greater alienation from social institutions, greater rebelliousness, lower value on social conformity, greater receptivity to new ideas and experiences, greater interest in creativity and spontaneity, greater expectations of failure, lower sense of psychological well-being expressed through greater apathy or high levels of distress, and lower conformity to social conventions. Other personality factors have been suggested, but are less reliably associated with AOD use; these
include external locus of control, lower self-esteem (e.g., Kaplan, 1982), and depressive mood (e.g., Kandel, 1978).

Studies by Murray and Perry (1995) have revealed that a number of these correlates also predict future AOD use. As the authors indicate, "The intrapersonal antecedent factors generally suggest that relative to those who will not use drugs, future drug using adolescents are somewhat more unconventional and non-conforming, more open to new experiences and more spontaneous, and place lower value on and expect less from traditional avenues for achievement" (p. 238).

Dielman, Butchart and Shope (1993) tested a structural model analyzing the patterns of family interactions, peer alcohol use, and intrapersonal predictors of adolescent use and misuse. Dielman and colleagues formed constructs including parents' alcohol use, older sibling alcohol use, parents' approval of students alcohol use, older sibling approval of students alcohol use, peer use and approval of alcohol use, parental nurturance, parental permissiveness, child's grade in school, susceptibility to peer pressure, and self-image. The final analysis of the model accounted for more than half the variance in both alcohol use and alcohol misuse.

Interpersonal Characteristics

Interpersonal factors are those factors that generally fall into the realm of social skills or socialization. These factors include general social skills, bonding with peers, family, school and community, and behavioral management.
Social Inhibition/Alienation

The effects of social isolation on AOD use may be mediated through the direct effects of drugs on positive affect, initiation in a peer group of similarly alienated youth who may readily accept deviant behavior, or myriad other processes (CSAP Tech Report #7, 1993). It is clear that, in general, research indicates that social alienation is a risk factor for AOD abuse. Parker and Asher (1987) found that low acceptance by peers puts youth at risk for school problems and criminality, both of which are risk factors for AOD use. Similarly, Kellam, Simon & Ensminger (1980) reported that aggression, especially when coupled with being shy, predicted later AOD use. Coie et al. (1983) found that increased rejection by school peers places youth at increased risk for AOD use.

These data confirms the data obtained from self-reports and personality profiles of teen AOD users. In a number of studies, teen users report feeling alienated from the dominant values of society and authority (e.g., Brounstein et al. 1989; Elliott et al. 1985; Goldstein & Sappington, 1987; Jessor & Jessor, 1977; Kandel, 1982), as well as from their peers (e.g., Brounstein et al. 1989; Shedler & Block, 1990). Further, social alienation and aggression may be related and, together, extremely important in determining later use (Kellam et al. 1980).

Socialization

Socialization is a factor in human development. Students who are lacking in socialization skills are categorized as having weak interpersonal skills. A substantial portion of socialization involves the peer group. Oetting and Beauvais (1987) examine peer cluster
theory, socialization characteristics, and adolescent AOD use in a path analysis model. Their psychosocial model suggests that the socialization factors that accompany adolescent development interact to produce peer clusters that encourage drug involvement or provide sanctions against AOD use. Peer cluster theory suggests that other socializational variables such as strength of the family, family sanctions against AOD use, religious identification, and school adjustment influence AOD use only indirectly, through their effect on peer clusters. According to Oetting and Beauvais, correlations of these socialization variables with AOD use confirm the importance of socialization characteristics as underlying factors in AOD use and also confirm that other socialization factors influence AOD use through their effect on peer drug associations. Peer cluster theory suggests that treatment of the drug-abusing youth must alter the influence of the peer cluster or it is likely to fail (p. 206).

Bonding

Bonding is considered a critical element in interpersonal skills. McDonald and Towberman (1993) instituted a study evaluating the ability of a four-factor psychosocial model to explain adolescent drug involvement. According to McDonald and Towberman, the results confirmed their belief that both external (sociological) and internal (psychological) causes guide the decision to be involved in AOD use. The results of the multiple regression indicated a need for children to bond with peers, parents, and others who have drug resistant attitudes, and with conventional institutions such as schools.
Family Factors

Family factors play into the scope of interpersonal characteristics, but are also an element to be considered in the socio-environmental system and intrapersonal characteristics. Jurich, Polson, Jurich and Bates (1985) researched family factors in the lives of AOD users and abusers. They studied nine different factors including parental absence, discipline, scapegoating, hypocritical morality, parent-child communication gap, parental divorce, mother-father conflicts, family breakup, and the use of "psychological crutches" to cope with stress. A paired analysis between AOD users and drug abusers yielded significant differences on the use of two "psychological crutches" to cope with stressful situation: drugs and denial. According Jurich and colleagues, AOD users were less likely to come from families which used democratic disciplinary techniques. Drug abusers came from families where there was a communication gap and either laissez faire or authoritarian discipline.

Early Aggressive Behaviors

The research literature is quite clear in presenting a profile of the serious teen AOD user as disengaged from society at large and often engaged in serious delinquent acts (CSAP Tech Report #7, 1993). The report affirms that if this antisocial stance is manifested early, it represents an important marker for easy identification of those who might benefit from intervention. Lerner and Vicary (1984) note that difficult temperaments, negative mood states, and social withdrawal, even among young children, are related to later AOD use problems.
In terms of outward aggressive acts, Lewis, Robins & Rice (1978) reports that the greater the variety, frequency, and seriousness of childhood antisocial behavior, the more likely it is that the antisocial behavior will persist into adulthood. Kellam and Brown (1982) report that aggressive behavior in 5 to 7 year-old boys is a strong predictor of later antisocial behavior, including serious teen AOD use. Similarly, early aggressive behavior, especially among boys, has been linked to drug abuse problems in adulthood (e.g., Lewis et al. 1985) and delinquency (e.g., Loeber, 1988). If the aggressive behavior continues from early childhood into adolescence, the relationship between the aggression and alcoholism (e.g., Loeber, 1988; McCord, 1981) and other drug abuse (e.g., Barnes & Welte, 1986; Kandel, 1982) is strengthened.

**Delinquency**

Of the many risk factors for AOD use studied, none has received as much attention from researchers as delinquency. The reason for this is clear: When a youth engages in a serious delinquent act, he or she confronts society not just with the consequences of the delinquent act, but also with the costs to reform the adolescent. Further, delinquency is in itself a behavior or behavioral syndrome, marked by a set of risk factors (CSAP Tech Report #7, 1993). Cursory review of the risk factors indicate a substantial overlap with the risk factors for teen AOD use. It may therefore be possible to understand both sets of behaviors—delinquency and teen AOD use—within a similar framework.

Devery (1993) discusses the relationship of school vandalism, truancy, and violence being linked to AOD use. A recent nationwide
Student View Survey by Johnson Institute compared non-AOD users with those students who used drugs. The survey revealed that users are more than twice as likely to get into physical fights, three times more likely to be truant from school, twice as likely to have trouble concentrating in school and four times more likely to commit vandalism.

Several theoretical perspectives have been advanced to explain the causal connection between AOD use and delinquency. For example, Jessor and Jessor (1977) theorized that AOD use is one of a number of problem behaviors resulting from adolescent experimentation. This experimentation may be a problem not only because it is at variance with societal norms, but also because it is wholly inappropriate for the age of the individual (Kandel, 1980). The social learning perspective (Akers, 1985) posits that deviant behavior is initially learned and then reinforced by association with deviant peers. Kaplan (1980) advanced a self-derogation theory of delinquency and AOD use, proposing that youth engage in deviant acts, including AOD use and delinquency, to boost a self-esteem leveled by the adverse consequences of interactions with traditional socialization agents—family, school, and the like.

Kandel's socialization theory (1973, 1975; Kandel & Adler, 1982) views AOD use and delinquency as stemming from the youth's personal characteristics and the competing influences of family, peers, and other institutions with which the adolescent interacts. Common cause theories, such as those espoused by Elliott and his colleagues (1985) and Kaplan, Murray and Robbins (1984) hypothesize that while a core of antecedent variables will serve to
predict both AOD use and delinquency, sufficient non-overlap exists so that additional predictors can discriminate between the two.

Kaplan et al. (1984) view AOD use as but one form of deviant behavior or antisocial behavior. He classifies deviant behaviors either overt (confrontive) or covert (concealed). According to Kaplan and colleagues, both forms develop naturally in children (e.g., making up stories, grabbing, wandering away from parents, and hitting) and generally disappear through the normal socialization and maturation processes. For some, these early forms may mature into lying, stealing, vandalism, trespassing, truancy, AOD use and other more serious forms of deviant behavior as the child moves into and out of adolescence.

Loeber and Schmaling (1985) present a timeline for the emergence of the new forms of deviant behavior as they occur in the absence of appropriate socialization. Robins (1978) presents evidence in support of this developmental sequence, showing that most antisocial adults were also antisocial children, and that the best predictor of adult antisocial behavior is the range of antisocial behaviors observed in the child. AOD use is thus viewed as a natural result of the development of deviant behavior if socialization to conventional mores is unsuccessful. This formulation suggests that AOD use may be prevented by properly socializing the child (Murray & Perry, 1985).

**Problem Behavior Theory**

Like Kaplan et al. (1984), Jessor and Jessor (1977) have presented a model which places AOD use in the context of other problem behaviors such as precocious sexual activity, delinquency
and social activism. Problem behaviors are those which are inappropriate for the age group or which are not sanctioned by society. The Jessors suggest that, "both environmental and individual difference factors contribute to the development of problem behavior, and their conceptualization of three major systems of predictor variables (personality, perceived social environment, and behavior factors) has provided a framework useful to many etiological researchers" (p. 242). As described by Murray and Perry (1985), the problem behavior structure includes six behaviors: political activism, marijuana use, sexual activity, drinking, problem drinking and general deviant behavior, of which delinquency remains the main component.

In summary, delinquent behavior is a risk factor for adolescent and adult AOD abuse. However, one does not seem to cause the other. While delinquency and adolescent AOD use share many common etiological roots, they do not seem to be completely determined by the same conditions. Still, delinquent behavior is one of the most salient and serious markers for adolescent AOD use, identifying a population of youth who may experience multiple problems, including the other risk factors described in previous sections of this report.

Skills

Some researchers choose to look at both intrapersonal and interpersonal skills as types of skills rather than categories of skills. Rogers, Howard-Pitney and Bruce (1990) describe several skills:
Assertiveness Training Skills

By definition, assertiveness training is the development of social skills that enable individuals to maintain or defend their position in a positive manner (Rogers, Howard-Pitney & Bruce, 1990). This often involves the development and practice of counter-arguments in order to resist inducements to try or use alcohol and other drugs (e.g., how to say "no").

Refusal Skills

The development of refusal skills focuses on development and acquisition of effective verbal and/or non verbal counter-arguments to refuse offers of alcohol and other drugs.

Communication Skills

Communication skills develop the student's abilities to listen and exchange information with peers and adults in a positive and assertive manner.

Goal Setting Skills

Goal setting involves identifying and establishing short-term, mid-term or long-term goals.

Coping/Stress Reduction Skills

Coping and stress reduction skills teach the identification of stressful, negative situations, and how to deal with them in a positive manner.

Decision Making Skills

Promoting decision making skills encourage students to learn to generate and evaluate alternatives or solutions to various situations involving use of alcohol and other drugs.
Self-Awareness Skills

Enabling a student to identify personal feelings and preferences as well as to recognize and accept interpersonal differences is the goal of teaching self-awareness skills.

Consumer Awareness Skills

This skill focuses on advertising and consumer persuasion in relation to alcohol and/or tobacco use.

Life Skills

Still another camp of researchers look at the intrapersonal and interpersonal skills as life skills (Botvin et al. 1985). Lifeskills are an assortment of behaviors that can reduce stress and help us maintain physical and psychological health (Schmitz & Hipp, 1987). Examples of lifeskills are found in people who set goals, manage their time, build supportive networks, and who assert themselves responsibly. They are found in people who know how to relax and take good care of their physical health. According to Schmitz and Hipp, "Lifeskills are tactics that build rather than drain energy; they fortify people for living, as well as heal their wounds" (p. 7).

The concept of lifeskills is closely tied to the concept of stress (Schmitz & Hipp, 1987). They use lifeskills and stress management skills somewhat synonymously. In and of itself, stress is neither all bad nor all good. Certainly, it is an important part of life. The authors state, "Stress is a biologically inherited response of humans to any number of potentially threatening triggers or stimuli. When stimulated by either a pouncing tiger, a verbal attack, an abstract worry, or an unconscious nightmare, we experience a shot of

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neurochemicals to the brain and a succession of other physical and psychological reactions, such as increased pulse rates, rapid breathing, fear, and restlessness. This supply of energy can be very positive and useful. It can also be debilitating, and greatly detract from the quality of life" (p. 8).

The literature by Schmitz and Hipp (1987) admits that what people do with particular triggers (stressors) and their own reactions (stress patterns) differs greatly from individual to individual. Even when two equally trained people are faced with the same stressful event, their perceptions—and ultimate responses—may be very different. Schmitz and Hipp propose a Taxonomy of Lifeskills Development. The visualization shown here represents starting at the basic point of undifferentiated Awareness and proceeds up through the stages to internalized awareness.

1 Undifferentiated Awareness
2 Heightened Awareness
3 Personal Awareness
4 Proactive Awareness
5 Internalized Awareness

At the lowest level of the stair we find "undifferentiated awareness of stress" (Schmitz & Hipp, 1987). At the next level in the taxonomy of lifeskills "heightened awareness" stress as a sensation begins to have distinct qualities. Persons at the next level, "personal awareness," can now describe their personal pattern or cycle of stress in more detail. At the fourth level of
lifeskills development, "proactive awareness" individuals shift from passively reacting to stressors, to asserting some controls over them. When possible, they now choose to moderate or eliminate sources of negative stress within their environment, and to search out alternative behaviors that give back a sense of strength, energy, or peace. The final step, "internalized awareness," is to actually do for ourselves that which we know is good. The taxonomy parallels ideas similar to those of Schinke and Blythe (1981) and his Cognitive-Behavioral Skills, to Wills (1985) and his Decision Skills, and to Meichenbaum (1977) and his Stress Management Skills.

AOD Use

Many studies have found a link between certain risk factors and whether or not a young person experiments with, occasionally uses, or abuses alcohol and other drugs (e.g., Kandel, 1980; Hawkins, 1991). Risk factors affect individuals differently. In some adolescents it may delay the first use of a substance, in others it may prevent its use altogether. Studies indicate that the longer we can delay experimentation with alcohol and other drugs, the better our chances of preventing serious problems.

Alcohol and other AOD use is generally not caused by a single factor (OSAP, 1990). The publication confirms a single strategy will not solve the problem. Alcohol and other AOD use is more likely a function of a number of risk factors encountered within the school, family, peer group, and community. The greater the number of risk factors, the greater the likelihood of problems. Schecter (1991)
restates the argument in more specific terms by saying the greater the number of risk factors, the greater the probability that adolescents will use substances. Others find a multiplicative effect of adding risk factors on the likelihood of AOD use (e.g., Rutter, 1980). OSAP describes risk factors as poor school climate, easy availability of drugs, unclear school policies and guidelines, unclear community norms, low expectations of certain groups, use of alcohol or drugs by parents, poor socialization skills, lack of employment opportunities, neighborhood disorganization, lack of meaningful youth involvement, and abundance of liquor outlets.

Huba and Bentler (1982) present a domain theory for the development of AOD use among adolescents that is largely concerned with "behavior patterns and styles rather than component behaviors, and identifies several biological, intrapersonal, interpersonal, and socio-cultural characteristics which influence one another and the behavior displayed by the individual" (p. 244). In this formulation, the most important determinants of AOD use are represented by the individual's psychological status, intimate support system, and behavioral pressures system. Huba and Bentler define psychological status as the enduring psychological characteristics of the individual. The intimate support system refers to the person's family and friends. The behavioral pressures system consists of the perceptions of the social desirability of selected behaviors.

Huba and Bentler (1982) suggest, "the initiation of AOD use, particularly when it occurs in adolescence, is almost entirely derived from self-perceived behavioral pressure resulting from the
intimate support system. The intimate support system plays a role in moving the individual to AOD use through peer values, models, and reinforces, and through inadequate support of alternative, healthy behaviors and goals that would inhibit susceptibility to AOD use" (p. 244). Murray and Perry (1985) also argue that the relationships among their variables and domains probably change as the child matures through adolescence. Their model suggests that AOD use results from the interplay of a number of variables and that prevention efforts should concentrate on behavioral pressure, intimate support, and personality factors.

Akers et al. (1979) applies basic principles of social learning theory, differential association theory, and operant conditioning theory to the development of adolescent AOD use. In this framework, deviant behavior is likely to occur when it is differentially reinforced and is defined as desirable by influential others. They contend that regular use is "predicted by the extent to which the pattern of use is sustained by reinforcement from the substance itself, by exposure to models using illegal substances, and by the degree to which substance use is not deterred as a result of negative consequences or sanctions from peer groups, parents, or the community" (p. 245).

A different outlook than Akers's et al. (1979) learning theories is Flay's et al. (1985) developmental model. Flay et al. present a developmental model that is specific to cigarette smoking onset, but has application for general AOD use onset as well. They identify five stages of smoking: preparation, initiation, experimentation, regular smoking, and habitual smoking. They
suggest, "family influences are most important during the preparation stage, helping to shape attitudes about smoking, define what smoking is like and what its functions are, and establish intentions to try smoking" (p. 246). Peer pressure is suggested as the most important factor in determining when cigarettes are first tried. Flay and colleagues suggest a number of reasons why teenagers may start to smoke. They state, "Smoking may be an effort to achieve social acceptance; it may be one of many experimental activities shared with the peer group; it may be a means to control emotions or to overcome low self-esteem; or it may be a means to define oneself as tough or independent" (p. 246). They propose that attitudes developed during the preparation stage may effect the selection of peers who would be chosen on the basis of like attitudes, in a way similar to what Kandel (1978) calls selection. According to Flay et al. selection of peers may be influenced by socioeconomic status since that domain influences the child's environment.

One of the great difficulties in assessing and interpreting literature on the subject of AOD abuse revolves around the many definitions of abuse used by different researchers studying the field (e.g., Johnston et al. 1989; Kandel, 1980; Miller et al. 1983). Some prior research studies have defined individuals as abusers if they have tried marijuana on one or more occasions. Other studies have distinguished between individuals as a function of their AOD use (e.g., alcohol only, marijuana, other illicit drugs). Some research has been designed to investigate the precursors and correlates of initiation into AOD use. Many studies involve those for whom AOD
use is periodic, and primarily for what used to be termed "recreational" use. Still other studies focus on drug-dependent populations. According to CSAP Tech Report #7 (1993), the results of these differently focused studies often provide a number of common predictive factors. Yet, the results are often divergent enough to be specific to the population under investigation and their progression along the substance abuse continuum from initiation to dependence.

The practical problem inherent in these diverse definitions of "use" and "abuse" are how to make sense of the research in the field, and then how to best apply the findings to establish informed policy and effective programs. CSAP Tech Report #7 (1993) warns that research that equates alcohol or other drug abuse with initial or one-time use cannot readily be compared with those studies that limit the term "substance abuser" to those who are drug dependent. CSAP's policy is that any use of alcohol or other drugs by children and adolescents constitutes abuse. According Berla and Henderson (1991), the "use or abuse" of alcohol and other drugs may be part of a general pattern of behavior and can sometimes be predicted by observing other patterns of teen behavior.

**Adolescent AOD Behavior**

Peer group acceptance is very important to teens. AOD use is sometimes a prerequisite for acceptance into and participation in a group. Alcohol and other drugs may sometimes be used by adolescents in the "weaning process," to assert their independence from their parents. AOD use in this case may be an act of defiance, nonconformity, or rebellion, and is seen by teens as a positive adult
behavior. Early use of cigarettes, snuff, alcohol, and other drugs is often seen in Western society as a symbolic rite of passage into adulthood. Initially, many teens also may use alcohol and other drugs out of curiosity. The earlier the age of initiation into AOD use, the greater the probability of extensive and persistent involvement. Teens who drink alcoholic beverages (usually beer) often exhibit other antisocial behavior, skip classes, have a low sense of self-worth, and suffer from a sense of alienation from the mainstream, even though they may be accepted by their smaller group of friends. Alcohol and other drugs are sometimes used by teens in an attempt to cope with their frustration and anger and to relieve their anxieties. Teen alcohol users lack a strong sense of positive involvement and attachment in their family relationships.

Adolescents' Views About Drugs

What do adolescents think about drugs? Many students in grades 5 to 12 who participated in a 1989 opinion poll, think drugs are easy to obtain and easy to use at school (The Challenge, March 1990). According to results of a survey conducted by Scholastic, Inc., 33 percent of students say it would be easy to buy drugs at school. This opinion increases at each grade level, from 14 percent of 5th and 6th graders to 49 percent of 11th and 12th graders.

In addition, one-quarter of students say hiding drug behavior at school would be "very easy" or "fairly easy." Among 5th and 6th graders, only 9 percent think hiding drug behavior would be easy, while 35 percent of 11th and 12th graders think so. Large numbers of students also believe they can try drugs without slipping into drug abuse. Affirmative responses range from 13
percent of 5th and 6th graders to 41 percent of 11th and 12th graders. A surprising percentage of students—44 percent—would favor drug tests for high school students. Grade level responses range from 65 percent of 5th and 6th graders favoring drug tests for high schoolers to 32 percent of 11th and 12th graders.

Other findings from the poll show that 50 percent of all students describe their level of concern about drugs as "serious" or "fairly serious." Twenty six percent of students think "a good self-image" is the single most important factor for substance abuse prevention, followed by peer support and good relationships with parents. Thirty four percent think fear of going to jail helps deter young people from selling drugs, with fear of violence from other drug dealers as the second most important deterrent. Younger students would turn to parents if they had a personal problem with drugs, while older students would turn to friends. Parents also are the most credible source of information about drugs for younger students, while older students think information from former addicts is more effective.

Etiology of AOD Use

Why do people use drugs? According to a NIDA (1991), people use drugs for a variety of reasons:

Emotional reasons. These include to increase self-esteem or self-confidence, escape emotional upset, reduce anxiety or tension, avoid the pressure of making a decision, and assert independence.

Physical reasons. Feeling relaxed, blocking pain, intensifying sensations, and increasing energy or endurance, comprise this group.
Environmental reasons. This category contains the popular acceptance of drug and alcohol use, the turmoil of contemporary society, fragmented family structures, pressure to mature earlier, and negative role models.

Social reasons. These include to be accepted as "one of the group," gain recognition or admiration of friends, overcome shyness, escape loneliness, family problems, and aid communication.

Intellectual reasons. Reducing boredom, better "understanding" of yourself, avoiding mental fatigue, improving attention span, and satisfying curiosity are contained in this group.

A combinations of reasons. For example, smoking marijuana may serve a social need for acceptance, a physical need for relaxation and an emotional need for self-esteem.

Reasons for AOD Use

Why do kids use alcohol and other drugs? Experts say there are several reasons why children use alcohol and other drugs (OSAP, 1991).

Fit in and belong. When kids begin to seek important friendships outside the home, they are very concerned about fitting in with the group. This is the most frequent reason given for using alcohol or other drugs.

Feel grown-up. The need to feel grown-up stimulates children to use alcohol or other drugs.

Be able to let loose. Some children can be extremely awkward and self-conscious, especially youngsters who are starting to mature physically. They may drink or use other drugs to relieve
the anxiety that other drugs to overcome shyness may suffer from a lack of self-confidence.

**Make themselves feel better.** Some kids think a drink or the use of another drug will cheer them up or help them forget a problem. Others use to help deal with early pressures to succeed at school, or to deal with unrealistic expectations placed upon them by their parents.

**Find out what drinking is all about.** Simple curiosity is a big reason kids drink or use other drugs.

**Be defiant.** Some kids drink or use other drugs because it is forbidden. They may want to test themselves, or their parents.

Schaefer (1987) looks at AOD use in a different context. He contends there are countless reasons why a teenager chooses to use, including low self-esteem, peer pressure, curiosity, escape, excitement, and rebellion, but most can be traced back to external pressures. According to Schaefer, "They're urged to grow up faster and make important life decisions sooner. And they're encouraged to use chemicals by their peers and by the culture" (p. 13). Schaefer states four reasons he believes that today's adolescents have a lot more pressure than adolescents in previous decades. (1) We live in an instant-gratification society with instant gratification and expectations. Alcohol/drugs work instantly. (2) The amount of advertising for alcohol/drugs has doubled within the past six years. Young people are continually bombarded with the message that alcohol/drugs are the answer to all of their questions, the solution to all of their problems and insecurities. (3) The amount of time
teenagers spend watching TV has produced an essentially passive generation. Too much TV squashes creativity and promotes passivity a setup for chemical abuse. (4) Alcohol/drugs are available in all of our communities. Urban or rural, the statistics are about the same.

AOD use may be perceived as a means to ease the challenges which adolescence brings (Murray & Perry, 1985). The researchers propose, "AOD use may be seen as a way to consolidate with peers, as a way to establish autonomy, as a way to separate from the family, and as a way to address the emerging questions and hypotheses adolescents have about themselves" (p. 248). The complexity of adolescence makes it a difficult period in which to intervene. Murray and Perry warn that the critical role that adolescence plays in shaping adult behavior underscores the need to establish health-enhancing behaviors during adolescence to ensure that the emerging adult has every opportunity to function successfully and productively.

Initiation of Substance Abuse

The initiation of substance use is primarily an adolescent phenomenon, occurring within the context of great physical and psychological change (Botvin & Wills, 1985). They assert that adoption of one substance typically leads to experimentation with other psychoactive substances, and research with adolescents has shown a predictable sequence of initiations: individuals begin with tobacco and alcohol, progress later to marijuana, and may eventually go on to use other drugs such as depressants or opiates (Hamburg, Braemer & Jahnke, 1975; Kandel et al. 1978). For this
reason, tobacco (nicotine) is frequently viewed as a "gateway" drug that greatly increases the probability of regular and/or problematic use of other substances. Psychological variables such as low self-esteem, depression, and poor coping skills are notably significant for predicting subsequent progression to problematic AOD use (Kandel et al. 1978), and for this reason investigators have given extensive consideration to the psychological factors that are implicated in adolescent AOD use.

Botvin and Wills' (1985) research indicates that during adolescence, individuals "typically experiment with a wide range of behaviors and lifestyle patterns as part of the natural process of separating from parents, developing a sense of autonomy and independence, and acquiring some of the skills necessary for functioning effectively in the adult world. Profound cognitive changes occur during the beginning of adolescence which significantly alter the adolescent's view of the world and the manner in which he/she thinks" (p. 10).

Also, due to what has been characterized as "adolescent egocentrism" (Elkind, 1978), adolescents tend to have a heightened sense of self-consciousness concerning their appearance, personal qualities, and abilities. Furthermore, as students approach adolescence, there appears to be a progressive decline in the impact of parental influence and a corresponding increase in the impact of influence from peer networks (Utech & Hoving, 1969; Glynn, 1981). Finally, in a cognitive process termed "adolescent invulnerability" (Urberg & Robbins, 1983), teens perceive that they are not
susceptible to the hazards presented by risk-taking and health-compromising behaviors.

These and other developmental changes occurring during this period increase adolescents' risk of yielding to various direct and indirect pressures to smoke, drink, or use drugs (Botvin & Wills, 1985). The combination of adolescent egocentrism and the increased reliance on the peer group tend to promote substance use in some individuals. At the same time, the cognitive developments occurring prior to and during this period can serve to increase vulnerability to substance use influences by undermining knowledge related to the potential risk of using these substances.

Several researchers have suggested that adolescents who use many different drugs do so in an ordered fashion, systematically moving through a series of stages of AOD use. Hamburg et al. (1975) observed that students generally experimented first with coffee and tea. This was followed sequentially by wine and beer; tobacco; hard liquor; marijuana; hallucinogens, stimulants and depressants; and narcotics. The onset points for these drugs were distinctly separate in time. Very few students involved with one drug had not moved sequentially through each of the preceding drug groups. Kandel (1975) reported very similar results on a much larger sample. She observed four stages: beer or wine, hard liquor and/or cigarettes, marijuana, and other illicit drugs.

Both Kandel (1975) and Hamburg et al. (1975) have been careful to point out that involvement at one stage does not necessarily lead to the next stage; however, involvement at one stage was very unlikely without involvement at the previous stage.
The literature on the antecedents of adolescent AOD use suggests that social-environmental, intrapersonal, and behavioral factors are the most important determinants of future AOD use (e.g., Kandel et al. 1978; Botvin & Wills, 1985; Murray & Perry, 1985). The social environment may provide the necessary background conditions for AOD use through models and social supports, and through access to drugs or alternatives. However, not all adolescents in high risk environments choose to experiment or use drugs regularly. Intrapersonal and behavioral factors may be critical in determining the response to the environment through the relative value placed on conventional goals and activities and through the skills available to the adolescent to choose non-drug alternatives that meet his or her needs (Murray & Perry, 1985).

**Functions of AOD Use**

Several of the etiological models, particularly problem behavior theory, domain theory, and Flay's developmental model, suggest the functional relevance of AOD use among adolescents. AOD use appears to serve a variety of different functions for adolescents at various ages and under multiple conditions. Murray and Perry (1985) identified and labeled six functions that appear to be most prevalent: transition marking, social acceptance, stress reduction, personal energy, recreation, and relief from boredom or loneliness. According to Murray and Perry, transition marking and social acceptance appear particularly important among younger adolescents while stress reduction appears more important among older adolescents.
Personal energy, recreation and relief from boredom and loneliness appear common needs for many adolescents. These functions may be seen as needs or challenges facing adolescents. Through observing others and through direct experience, adolescents learn which behaviors are useful in meeting these functional needs, i.e., behaviors take on functional meaning. Murray and Perry contend that behaviors that have similar functional meanings may be seen as alternatives from which the adolescent may select a particular response as needed.

Alternatives to AOD Use

Most adolescents choose alternatives to substance abuse. Alternative pursuits are activities and interests that fulfill a person's need for personal enrichment and fulfillment without resorting to "chemical highs" (Quest, 1991). Alternative pursuits advocate "natural highs"—good feelings about one's self that are derived from natural experiences. The Quest Program's literature explains the alternative pursuits concept by stating, "For every level of experience, certain motivating factors encourage specific human needs. These needs are often met through AOD use. However, these needs can be met more appropriately through alternative experiences, or natural high pursuits" (p. 63).

A basic requirement for Quest's Alternative Pursuits Project is involvement. The people who will benefit from the project must be actively involved from the beginning in defining and developing the program. They must decide what to do and what would be relevant to their needs and aspirations. They need to find effective ways to create such an experience to help meet these aspirations.
Some guidelines for an Alternative Pursuits Project are: (1) It must help participants find improved self-image, feelings of significance, expanded awareness, new experience—all of which are sought through drugs. (2) It should contribute to individual self-identity. (3) It must offer a chance for participation and commitment. (4) It must be realistic. (5) The consumer group for which the activities are designed must have a part in planning an operation. (6) It should be built upon existing available resources. (7) It must be innovative—not modeled exactly after some other project.

School Outcomes

"The destructive effects of student AOD use on learning and on the conduct of schooling in general are by no means limited to the users themselves. Even a few drug-enervated students in a classroom will change the learning climate for everyone. Drug-altered children are largely impervious to classroom business; teachers are apt to see them as unprepared, preoccupied, and hostile. Such students—and again, it only takes a few—tend to shut teachers down and to push them toward less effective teaching."

Substance abuse may cause problems for adolescents in school. Can "school problems" cause a greater propensity for AOD? According to CSAP Technical Report #7 (1993), problems at school may arise from learning or other behavioral difficulties, but they may also be risk factors for AOD use. As in delinquent behavior,
these problems may be preceded by or occur in the presence of other risk factors or inappropriate behaviors.

Brounstein and colleagues (1989) reported that among their sample of 387 urban ethnic/racial male adolescents, AOD use was greatest among school dropouts and those who had been suspended or expelled from school. Similarly, several other researchers (e.g., Hawkins et al. 1985; Herjanic, Barredo, Herjanic & Tomelleri, 1979) report that AOD use increases with severe misbehavior and dropping out of school. Holmberg (1985) also reports that truancy, special placement, and dropping out are all related to AOD use.

In addition to expulsion, suspension, or dropping out of school, academic or interpersonal difficulties at school may serve as risk factors for AOD use (CSAP Technical Report #7, 1993). For example, the work of several researchers (Jessor & Jessor, 1977; Kandel, 1978; Robins, 1980; Smith & Fogg, 1978) demonstrates that failure in school is a common antecedent of AOD use.

However, even here, the translation of poor academic performance to risk for AOD use is not direct. For example, results from Kellam and Brown's (1982) longitudinal study found that learning problems were generally related to later AOD use only among physically aggressive youngsters. Similarly, Feldhausen, Thurston, and Benning (1973) report that social adjustment is crucial in mediating the relationship between academic failure and AOD use.

Nunn and Parish (1992) examined differences between high school students who were at risk for school failure and a control group of peers. The findings were consistent with those of other
psychosocial research which examined this issue (Hahn, 1987; Mills, Dunham, & Alpert, 1988). For example, Nunn and Prish found the at-risk students' locus of control was more externally oriented, indicating a greater tendency toward believing that behavior had little effect upon outcomes. Self-concept comparisons also revealed a self-perception of competency for at-risk students which was less than positive. Styles of learning indicated a profile of at-risk students who were less motivated toward achievement, had lower self-concepts as learners, and desired a more informal and nontraditional approach to learning. In the case of at-risk students, experiences appear to be filtered through a belief system which included a marginal sense of personal empowerment for effecting change, coupled with a devaluing sense of personal competence and deflated confidence.

A study by Evans and Skager (1992) examined substance use among academically successful students. The data was collected in two discrete anonymous surveys of 2,288 ninth-grade and 2,653 eleventh-grade California students, and 1,043 ninth grade and 862 eleventh-grade students from a large suburban county. Over seventy percent of the academically successful students from both samples reported some type of AOD use. These successful students were divided for comparison into three groups according to their involvement with drugs: abstainers, conventional users, and high-risk users. The analyses indicated that the negative association between AOD use and academic achievement may be counterbalanced by mediating factors identified in the study. These factors
included high" educational aspiration," "parent educational level," and "emotional stability."

Another study by Marston, Jacobs, Singer, Widaman and Little (1988) analyzed a group of high school students who denied any use of alcohol, drugs, or tobacco. These adolescents were compared to the "user" sample and results showed that the apparently "invulnerable" students reported generally better physical and mental health and academic achievement. They also indicated a significantly lower rate problems with their parents.

Considering the present societal context in which AOD use is so widespread, it should not be surprising that academically successful student users exist. Although discomforting for educators to admit, the study of these students is an opportunity to enhance efforts that seek to insulate adolescents from the detrimental effects usually associated with AOD use.

Friedman, Glickman and Utada's (1985) studies showed a correlation between substance abuse and failure in school. In a study of 526 students in two Philadelphia public high schools, the majority (135 of 265) who had been using drugs were found subsequently to have dropped out (failed to graduate) from high school, compared to only approximately one out of four (42 of 158) of the non-drug using students. Their findings suggest that while AOD use may not be the main cause of dropping out of high school, it is nevertheless clear that AOD use by adolescents interferes with academic progress in high school.

In the "Monitoring the Future" study, significant negative correlations were found in this cross-sectional analysis, between
average classroom grades and measures of illicit AOD use, and a significant positive correlation ($r = .34$) was found between amount of truancy and illicit AOD use. Johnston et al. (1989) acknowledges that it is possible that earlier experiences in the subjects' lives could have predisposed to poor school attitudes and poor school performance as well as to illicit AOD use.

According to the findings of Friedman, Glickman and Utada (1985) the great majority of students who, remained in high school through the twelfth grades, and were involved with illegal drugs, had no appreciable effect on their academic performance as measured by grades. Friedman and colleagues affirm, "The hypothesis that AOD use leads to lower grades can be eliminated" (p. 354).

Other researchers came to similar conclusions. O'Malley (1975) reported finding no significant relationships with AOD use in self-reported grades of cohort of 10th grade boys followed for four years after high school. Kandel (1975) reported from a cross-sectional analysis of a high school study, that absentees were more involved in drugs than their classmates who attended school regularly; and that the same factors which are related to school absenteeism, such as poor school performance and cutting of classes, are also related to higher rates of AOD use among regular students and may, in part, explain the higher rates of AOD use observed among the absentees.

According to Friedman, Glickman and Utada (1985), "There appears, therefore, from our literature search thus far to be no report of a high school study of substantial sample size which
determined the degree to which the amount and/or type of AOD use predicted subsequent school dropout" (p. 355). Their conclusion stated, "it is not clear whether AOD use per se has any adverse effect on academic performance or contributes significantly to dropping out of school, and that it may be that the same variables that lead to poor school performance, or to dropping out, are also related to involvement in drugs" (p. 355).

An earlier study to determine relationships between the regular use of marijuana and alcoholic beverages, and the academic performance of students during their four years in college was completed by Finnell and Jones (1975). Participants were grouped into four categories: (1) users of marijuana, (2) users of alcohol, (3) users of both, and (4) abstainers. Data was obtained and analyzed to determine the groups' academic aptitude, academic achievement, and degree of academic performance. They concluded on the basis of this study that: (1) the group using both marijuana and alcohol had the highest academic aptitude; however, when compared with the other groups, experienced a lower degree of academic performance; (2) alcohol had no adverse effect on academic performance; and (3) abstainers compared unfavorably with the other two groups in academic aptitude, but favorably in degree of academic performance.

Additionally, Finnel and Jones (1975) concluded that variables other than marijuana or alcohol may be involved in academic achievement and performance. They state, "marijuana usage does have a relationship with academic aptitude as determined by ACT composite scores, or, it may be said that
students with the best academic aptitude are students who have a greater tendency to use marijuana, and they may be using it at the expense of a better academic performance" (p. 20).

The relationship between AOD use, school performance, and academic aspirations among 446 Anglo and Hispanic youths, age nine to seventeen was explored by Paulson, Coombs and Richardson (1990). Two groups of subjects, current substance users and non-users were interviewed. Subjects in each comparison group were similar in age, ethnicity, and gender. Results, indicated a significant relationship between current school performance, future educational aspirations, and AOD use. Interviews relating to indicators of school performance revealed significantly fewer AOD users obtained excellent (6%) or above average (39%) grade averages compared with abstainers (14% and 50%). In their research on homework in this group, they found that abstainers reported higher homework hours.

In the number of days absent from school, Paulson, Coombs and Richardson (1990) reported that nearly half (43%) of the users reported eleven or more absences, compared to 29% of the abstainers. Proportion of absences due to "cutting" class was also researched in the study. They found that 89% of the abstainers reported that they cut no classes during the previous school year compared with users who reported 61%. Additionally, studies on boredom among youths in class confirmed that substance users reported far greater boredom at school than abstainers. Users (45%) reported feeling bored "often," far more than abstainers (29%), and "never" (15%), far less frequently than abstainers (26%).

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Students were also questioned on their academic aspirations. Substance users generally reported lower educational aspirations than non users (Paulson, Coombs & Richardson, 1990). Abstainers (62%) more often than users (47%) reported the desire to complete a four-year college program. Aspirations were much higher than expectations. Significantly more non-users (52%) than users (33%) expect to complete at least a four-year college program. This pattern held for almost all subdivisions of the study population. Among boys, 58% of the non-users compared to 37% of the users expect to complete a four-year college program. The level of education that parents wish youth to complete was likewise studied as an academic aspiration indicator.

Among the entire study population, more non-users (73%) than users (65%) said their parents want them to earn at least a four-year college degree; but, according to the researchers (Paulson, Coombs & Richardson, 1990), this difference was not statistically significant. The results showed some interesting similarities and differences between youthful substance users and abstainers with regard to school performance and aspirations. Non-users reported higher overall grades, fewer absences and cut classes, higher academic aspirations, more interest in school work and stronger feelings of its importance.

According to Rivers (1981), few issues in contemporary American life arouse more anxiety, fear, anger and concern than does drug abuse among youth. A study by Rivers, conducted during the 1977-78 academic year, sought to determine the nature and extent of AOD use on an urban community college campus and
ascertain the relationship, if any, between the use of drugs and academic success. Drugs, for the purposes of this study, were operationally defined as any substance which is taken for the purpose of self-modification and not taken under medical supervision. River's review of related research and literature revealed conflicting data regarding the relationship between AOD use and academic achievement.

Some studies concluded that there was a relationship between AOD use and academic performance. For example, Wardell and Mehra (1974) included "low academic responsibility" as one of the most important factors associated with marijuana usage. Berman and Benierakis (1972) also suggested that there is a correlation between AOD use and academic achievement in their studies. Conversely, Steffenhagen et al. (1971) reported that student AOD users tended to be well distributed in terms of academic standing. Field and Madigan (1974), in a study of personality and social factors of college students involved in AOD use, concluded that there was no difference in academic achievement between users and nonusers. Blum (1970), in a study which dealt with student characteristics and the use of psychoactive drugs, found that AOD use was not a predictor of grades. River's study was concerned with determining which of these conflicting theories would prevail in an urban community college with a predominantly white, upper middle-class student population. The findings of this study clearly support the theory that there is no relationship between AOD use and academic achievement.
The definition of prevention has undergone changes over the last two decades. Initially, researchers categorized prevention techniques into the three levels of prevention. Primary prevention dealt with those students who were considered not to be at risk, secondary prevention worked with students at risk, and tertiary prevention dealt with known AOD users. Two decades ago, primary prevention in schools dealt with identifying the risks associated with AOD use and prevention concentrated on "preventing" those risks. Primary prevention is now dealt with from a different perspective. Primary prevention now concentrates on identifying those characteristics demonstrated by non-using students and attempts to promote those characteristics among the student body. Secondary prevention concentrates on the risks factors and how they can be minimized, and how the positive characteristics can be encouraged.

Youth at Risk

Adolescents that fit the profile of multiple risk factors are often termed "youth at risk" or "high risk." According to MacDonald and Santiago (1991), youth at risk for substance abuse have at least seven characteristics that they exhibit which are of special interest. The first characteristic is a weak identification with a viable role model. The child at risk has often not experienced being an important contributing part of a relationship greater than his/herself. Thus, they have a weak identification with and responsibility for family processes. The third trait is the child's strong faith in
"miracle" solutions to problems. The child does not rely on personal resources to solve problems. The child at risk may not develop intrapersonal skills to cope with his/her feelings. The child at risk may also not develop interpersonal skills. They may lack effective tools to interact with other people.

MacDonald and Santiago (1991) suggest tools or skills for these children to learn are good listening, communication, cooperation, and negotiation. According to the researchers, systemic skills are often inadequate in the high risk youth. Children may be unable to deal with problems or difficult situations. They suggest skill development in areas of responsibility, adaptability and flexibility in problem solving. The child that is at risk also has difficulty with judgment skills. The concepts of good or bad, safe or dangerous, and what is legal as opposed to illegal, may be skewed.

The DATE Program (1990) subscribes to the "High Risk" concept of substance abuse causation and states, "Specifically, we believe that certain high risk factors greatly determine a person's inclination to use or abuse drugs in compensating for personal inability to deal successfully in these high risk areas" (p. I-5). The "High Risk" concept purports that lack of success in certain life areas tend to encourage drug abuse lifestyles.

**High Risk Factors**

**Self-esteem/Self-awareness.** These includes how a person views, values, and accepts himself. Persons of low self-esteem and whose self-awareness is clouded with uncertainty, often use drugs to cover their negative feelings about self.
Coping Skills. These describe how a person deals with stress and situations threatening his sense of well being.

Personal Valuing. The value system by which a person lives can sometimes be unclear and inconsistent. According to the DATE Program (1990), too often the choice to use drugs results from not having a personal value system, but rather electing to follow the values of another.

Communication Skills. The interaction between people, known as communication, can be most difficult. The degree of difficulty increases when communication concerns issues of great personal importance.

Interpersonal Relationships. Related closely to "High Risk" areas is the matter of interpersonal relationships. People who have trouble relating to others often find drugs a means of escape. An inability to relate meaningfully to others can greatly affect one's sense of belonging and place.

Authority. How a person views authority can well determine his social attitudes. AOD use has become a means of defying such authority.

Boredom. AOD use often results when two factors occur at once: boredom and drug availability. Add to the boredom, the feelings of low self-concept and esteem, inability to cope, poor communication skills, and the like, and AOD use becomes an increased possibility.

MacDonald and Santiago (1991) look at profiles of youth at risk for substance abuse. Children and adolescents under the age of
whose personal attributes include at least one of the following factors are considered "youth at risk."

- Juvenile delinquency
- Runaways
- Homeless or "Throwaway Children"
- Children of alcoholics
- Children of drug addicted parents
- Family criminality
- High school dropouts
- Youth with psychiatric disorders
- Unmarried pregnant adolescents
- Youth that have been physically, sexually or emotionally abused
- Families with a history of suicide, mental illness, and/or chemical dependency.
- Single parent households
- Lengthy illness in the family
- Change in parental marital status
- Unsatisfactory family relations
- Children in Foster Care
- Extreme sexual activity
- Exploited youth
- School difficulty—low degree of school bonding
- Inappropriate career/vocational skills and/or aspirations
- Poor or inconsistent family management practices
- Association with delinquent peers
- Neighborhood/Community disorganization
- Lack of spiritual development
- Affiliation with peers of other dysfunctional family systems

A study by Nunn and Parish (1992) examined the differences between high school students who were at risk for school failure and a control group of peers. According to Nunn and Parish, statistically significant differences were found as to locus of control, self-concept, and personal styles of learning. The implications of the study focused upon approaches and suggestions regarding the use of such knowledge in facilitating improved adjustments and achievement in at-risk students.

**Prevention Factors**

The opposite of risk factors are protection factors. Protective factors are the personal attributes or environmental characteristics that mediate or moderate the impact of risk factors in causing adverse consequences for the individual (Rutter, 1979). For example, high levels of impulsivity and low levels of harm avoidance are viewed as risk factors for AOD use, but low levels of impulsivity and high levels of harm avoidance are viewed as protective factors (Labouvie & McGee, 1986). However, Labouvie and McGee warn that not all risk factor opposites are viewed as protective factors. Schecter (1991), argues that it makes sense to assume that for every risk factor there exists a corresponding protective factor. She views protective factors contributing to resilient individuals. She contends that lack of attachment to parents or guardians is almost always a risk factor for problem
behavior, including AOD use. Attachment to parents or guardians may be viewed as a protective factor against AOD use only if the parents or guardians maintain traditional (i.e., antidrug) values (Elliott et al. 1985).

By and large, the research on protective factors indicates that they fall into three primary categories: positive temperament, emotionally supportive parental/family milieu, and supportive societal institutions that strengthen and reinforce the child's coping efforts (Block & Block, 1980; Garmezy, Masten, & Tellegen, 1984; Johnston, Bachman, & O'Malley, 1981). Broader, external protective factors currently being explored by Garmezy and colleagues (1984) include: (1) Supportive family environment, family, cultural and racial pride; (2) External sources of support and role models; and (3) Fewer chronic stressful life events.

The issue of risk factors and protective factors is further complicated by the fact that they may coexist. The determination of behavior then must be viewed as the result of some integration of the two. Some evidence suggests that the relationship is additive—that a net surplus of risk or protective factors influences behavior (e.g., Bry et al. 1982; Newcomb et al. 1986). Scheier, Newcomb and Skager (1994) analyze regression paths in their structural model. They noted that much research had focused on the relationships between risk factors and adolescent AOD use. According to Scheier and colleagues, less is know regarding the role of protective factors and how they may inoculate youth from initiating or escalating their AOD use. Using latent-variable modeling and a risk factor method, they examined the cross-
sectional role of risk and protective factors in predicting teenage AOD use for three age groups, separated by gender. Their results underscore two important foci for prevention: (1) the importance of considering age-related development phenomena in the overall context of AOD use prevention; and (2) that programs continue to emphasize reduction, while simultaneously developing and reinforcing protective agents.

**Social Skills Training**

Research on generic personal and social skills training approaches to substance abuse prevention has been conducted primarily by four research groups around the country during the mid to late 1980s. These include research by Pentz (1983), research by Schinke and Gilchrist (1984), research by Wills (1985), and research by Botvin and McAlister (1981).

The research conducted by Pentz (1983) tested a prevention approach that is based on a social competence model of substance use. Substance use in early adolescence, according to this model, is a joint product of social influences and poor social assertiveness skills that are relevant for dealing with situations in which individuals may experience social pressure to smoke, drink, or use drugs. Pentz's model is derived from social learning theory (Bandura, 1977) and problem behavior theory (Jessor & Jessor, 1977). Pentz has reported associations between substance use and such variables as high anxiety, depression, low self-esteem, and low self-efficacy, suggesting that students who are prone to substance use are relatively low in social competence. Botvin and Wills (1985) concluded, "problem behaviors such as school failure, delin-
quency, and aggression have been found to be correlated with substance use" (p. 15).

According to Pentz (1983), these findings suggest that students with low social competence may be more susceptible to frequent use of drugs or alcohol as a means of relieving social anxiety. Pentz hypothesizes that students with low social competence are less able to deal with various kinds of explicit social pressure to smoke, drink, or use drugs. Adolescents who experience a delay in the development of social competence are viewed by Pentz as being prone to delinquency, aggressiveness, academic or social withdrawal, and substance use.

**Problems-Solving and Decision-Making Skills**

Schinke and his colleagues, (1984) at the University of Washington, have conducted a series of studies on a cognitive-behavioral intervention program. Instead of letting adolescents flounder through the adolescent years, learning skills in a chaotic, hit-or-miss fashion, Schinke suggests, "adolescents should be deliberately and systematically taught the skills necessary to enjoy happy, healthy, and prosperous lives" (p. 18). The cognitive-behavioral approach is designed to enable adolescents to acquire both the personal and social competence skills necessary for them to "handle current problems, anticipate and prevent future ones, and advance their mental health, social functioning, economic welfare, and physical well-being" (p. 18).

Schinke and colleague's (1984) approach recognizes the fact that adolescents are frequently influenced or pressured into participating in peer-sanctioned behaviors such as smoking,
drinking, and sexual intercourse. Although adolescents may possess knowledge concerning the health risks associated with engaging in these activities, the perceived social benefits of engaging in these behaviors may override this knowledge. Schinke points out that adolescents who have not acquired appropriate cognitive and behavioral skills are unable to make well-informed and well-reasoned decisions concerning such situations, and will be likely to lack the ability to successfully implement a decision that goes against group norms.

The general approach advocated by Schinke et al. (1984) involves the acquisition of decision-making and problem-solving skills which might enable adolescents to more fully utilize the information at their disposal and be better prepared to make decisions involving health-compromising behaviors. In addition, they state adolescents should be taught interpersonal skills so that they can communicate effectively and assertively.

Stress and Coping Skills

Wills (1985) conducted a program of research that examined the relationship among stress, coping, and substance use in adolescents. While it is recognized that substance use initiation is a multifactorial process that involves availability of substances, substance-related knowledge and attitudes, and social influences from parents and peers (e.g., Bentler et al. 1979; Botvin & McAlister, 1981), a major focus of Wills' research has been on the psychosocial stress factors that may predispose adolescents to begin using substances such as tobacco and alcohol. Epidemiological research (Kandel, 1978) has suggested that poor coping in several
life domains (e.g., parental relationships, school performance, coping with negative emotions) is a common underlying factor in the predictive patterns observed for many different types of substance use.

**Life Skills Training (LST)**

Research by Botvin and McAlister (1981) has involved the development and testing of a broad-spectrum prevention strategy called Life Skills Training (LST). The main purpose of this approach is to facilitate the development of generic life/coping skills as well as skills and knowledge more specifically related to resisting social influences to smoke, drink, or use drugs. A central feature of the LST program is the teaching of several cognitive-behavioral skills found to be effective when used to remediate psychological or behavioral deficits. Botvin and colleagues' LST Program includes "cognitive strategies for enhancing self-esteem (e.g., goal setting, behavior change techniques, increasing positive self-statements); techniques for resisting persuasive appeals (e.g., identifying persuasive appeals, formulating counter-arguments); techniques for coping with anxiety (e.g., relaxation training, mental rehearsal; verbal and nonverbal communication skills); and a variety of social skills (e.g., initiating social interactions, conversational skills, heterosocial ("dating") skills, complimenting, verbal and nonverbal assertive skills)" (p. 23).

The LST program is composed of three major components. The first component is specific training on substance abuse. The second component, the personal skills component, contains material concerning decision making, coping with anxiety, personal behavior
change and self-improvement. The third component, social skills, contains material designed to improve general interpersonal skills. Elements of this component include: effective communications, general social skills, skills related to male/female relationships among adolescents; and both verbal and nonverbal assertive skills.

**SUMMARY**

A review of the research indicates environmental factors, demographic factors and the cognitive and behavioral development of adolescents affect how students perform in school. With the increase in availability and pressures from friends and self, AOD use has been on the increase since the 1960s. A leveling off was observed late in the 1980s, but in the 1990s, AOD use is again on the increase, especially among the adolescents.

Differing opinions on AOD use affecting the level of academic achievement have been noted in numerous professional journals. Further research on these interrelating factors may produce implementation of policies directed at improving environmental variables, such as parenting and community influences, and the schools have the opportunity to teach healthy intrapersonal and interpersonal skills, and promote the positive influence of a drug free climate in the schools and the communities.
CHAPTER III. METHODOLOGY

This chapter explains the research design of the study, the survey used, the composition of the population, the instrumentation used, the data gathering procedures, the variables to be used and the statistical analysis to be performed.

RESEARCH DESIGN

This ex-post facto correlational study used five sets of multiple data and attempted to determine the relationship between the sets of multiple data. Socio-environmental systems represented the initial category of data in the flow chart. The socio-environmental system is related to the second set, the intrapersonal factors, which affect how a person thinks and acts. Also related to these sets are the interpersonal factors which are the socialization factors, bonding factors and the behavioral management factors. These three sets of data, according to the theoretical model proposed, affect the extent of AOD use. The model represents an analysis in which the socio-environmental, intrapersonal and interpersonal factors relate to reported AOD use, and how these four sets, in turn, relate to school outcomes.

In addition, the study will attempt to determine which characteristics, socio-environmental, intrapersonal, or interpersonal, will most accurately predict the reported AOD use and school outcomes. Moreover, the study will investigate how much affect
AOD use has on school outcomes. If the relationship between intrapersonal and interpersonal factors and reported AOD use is highly correlated then one might expect a similar correlation between the intrapersonal and interpersonal factors and school outcomes. One could surmise that there might also be a correlation between the intrapersonal and interpersonal factors and AOD use and school outcomes. If strong relationships do exist, then it may be possible to explain a relatively high proportion of the variance in individuals' reported AOD use and school outcomes (See Figures 3 & 4).

SUBJECTS AND SAMPLING

The "Monitoring The Future" project was developed by the University of Michigan's Institute for Social Research in 1974. The survey has been used to conduct research in the continuing lifestyles and values of youth. The Survey Project has been funded since the beginning by the National Institute on Drug Abuse. The survey, now in its 19th year of existence, has surveyed seniors in private and public high schools on an annual basis. The survey, sometimes referred to as the High School Senior Survey, samples seniors from across the continental United States. The data collected and used for this study was taken from the 1992 version of Monitoring The Future, Form 6. A secondary analysis of the data from the 1992 survey was used in this research study focusing on the relationship of socio-environmental systems, intrapersonal and interpersonal characteristics, reported AOD use, and school outcomes.
Theoretical Model #1 with Variables

Independent Variables

Socio-environmental
- Gender
- Ethnicity
- Urbanicity
- Family Structure
- Father's Educ.
- Political Belief
- Work Hours
- Religiosity
- Parental Support

Intrapersonal
- School
- Self

Interpersonal
- School Activities
- Delinquency
- Bonding
- Community
- Religion
- Friends
- Parents

Dependent Variables

AOD Use
Theoretical Model #2 with Variables

Independent Variables

Socio-environmental
- Gender
- Ethnicity
- Urbanicity
- Family Structure
- Father's Educ.
- Political Belief
- Work Hours
- Religiosity
- Parental Support

Intrapersonal Characteristics
- School Self

Interpersonal Characteristics
- School Activities
- Delinquency
- Bonding
- Community
- Religion
- Friends
- Parents

AOD Use
- Alcohol
- Other Drugs

Dependent Variables

School Outcomes
- Perceived Academic Attendance
- Educational Aspiration

Figure 4
From its outset, the Monitoring the Future project was designed as an annual nationwide surveys of high school seniors using group-administered questionnaires. Each spring, beginning with the class of 1975, the project has surveyed about 16,000 to 18,000 seniors, located in 125 to 140 public and private high schools, and selected so, as to provide a representative cross-section of high school seniors throughout the continental United States. The use of relatively large-scale samples for the annual data collections from each graduating high school class has several advantages. Bachman et al. (1991) defends the issue by stating, "many aspects of AOD use constitute fairly rare events; in order to have sufficiently large numbers for analysis of such events, the initial sample must be quite substantial" (p. 8). Another advantage of the large-scale samples is that they permit the use of several different, but overlapping questionnaire forms, thereby substantially increasing the content which can be covered by the study and also reducing the tedium for respondents of an "all drug questionnaire." Because a common core of AOD use items appears in all six questionnaire forms (along with a common core of demographic items), such core dimensions can be related to any of the other questionnaire, items irrespective of form. Additionally, Bachman et al. point out that it is actually easier to obtain large numbers of seniors than to select a small but representative subsample from a school.

The following information shares the sampling and data collection procedures for the annual survey of high school seniors.
The instrument employed is a self-completed questionnaire using closed-ended items and is designed for optical scanning.

The sampling procedure is multi-stage (Kish, 1965) as follows:

Stage 1 is the selection of particular geographic areas.
Stage 2 is the selection of one or more high schools in each area.
Stage 3 is the selection of seniors within each high school.

**Stage 1: Geographic Areas.** The geographic areas used in this study are the primary sampling units developed by the Sampling Section for use in the Survey Research Center's nationwide surveys. These consist of 84 primary areas throughout the continental United States. In addition to the 16 largest metropolitan areas, containing about 30 percent of the nation's population, 68 other primary areas are included: 11 in the Northeast, 18 in the North Central area, 26 in the South, and 13 in the West.

**Stage 2: Schools.** In the major metropolitan areas two or more high schools are included in the sampling design; in most other sampling areas a single high school is sampled. In all cases, the selections of high schools are made with probability proportionate to size of the senior class. The larger the senior class, the higher the selection probability assigned to the high school.

**Stage 3: Students.** Within each selected school, up to about 350 seniors may be included in the data collection. In schools with fewer than 350 seniors, the procedure is to include all of them in the data collection. In larger schools, a subset of seniors is selected either by randomly sampling classrooms or by some other random
method that is convenient for the school and judged to be unbiased. All respondents in a school are assigned a sample weight which takes account of variations in the sizes of samples from one school to another, as well as the smaller variations occurring at the earlier stages of sampling.

The result of this three-stage sampling procedure is a nationally representative cross section of about 16,000 to 18,000 young men and women in the senior classes of about 130 to 140 high schools throughout the United States. Bachman et al. (1991) noted that each survey of seniors employs six different questionnaire forms. For those key drug use and demographic variables which appear in all forms, the full sample of about 16,000 to 18,000 provides data each year. For other measures, the sample size averages around 2,700 seniors each data collection. The sample used in this study (Form 6) contains a sample size of approximately 2,700 seniors. The sample is divided into 48% male and 52% female, with ethnicity being described as 80% Caucasian and 20% African-American or other minorities. Seventy percent of the sample population come from nuclear families, with mother and father living at home. The father's schooling can be described as 85% completing high school and 32% completing college. Religiosity was measured by church attendance and 31% visited church once a week or more. Students working 1 to 20 hours per week amounted to 47%, while those working over 20 hours comprised approximately 20% of the sample, leaving almost 33% of the sample population non-working. Forty seven percent of the sample population recognized parental support in their schooling efforts.
The political beliefs were divided into 12% conservative, 60% moderate and 16% liberal.

**INSTRUMENT**

**Background**

The issues addressed in the Monitoring the Future project are broad in scope and of fundamental importance to the nation. Views about personal lifestyles, confidence in social institutions, intergroup and interpersonal attitudes, concerns about conservation and ecology, behaviors and attitudes related to AOD use, and other social and ethical issues are covered in the survey. A major emphasis is placed on AOD use and attitudes about drugs, both because use of drugs is itself a particularly serious problem among young people, and also because it is a symptom of other deeper problems and discontents.

This study monitors many variables which do not deal explicitly with drugs. The rationale has both a substantive side and a practical side. From a substantive standpoint, many of the monitored variables are known correlates of drug behaviors (e.g., social and political alienation, delinquency, religiosity), and their inclusion permits a continuous examination of the absolute and relative importance of their association with AOD use over time. Monitoring these several factors in the dynamics of AOD use can provide a better understanding of them not only in a cross-sectional sense, but also in terms of their importance across a
particular part of the life cycle and across a particular historical period (e.g., Johnston & O'Malley, 1978).

There are also important practical advantages to including some questionnaire content that extends beyond AOD use and closely related topics. Bachman et al. (1991) indicates that in surveying a "normal" or representative cross section of youth, the best way to gather substantial amounts of information about AOD use and explicitly drug-related factors is to embed those topics into a broader set of issues of concern to youth.

**Appropriateness of the Instrument**

There are several reasons why this instrument was appropriate to investigate the theoretical model proposed in this dissertation.

**Nationally Representative Samples**

The study employs large-scale, nationally representative samples of high school seniors, obtained on a recurring annual cycle. The use of nationally representative samples rather than local, state, or regional ones, reflects the conviction of the Institute for Social Research that the issues are national (and international) in their scope.

**Senior Year as Starting Point**

The choice of the senior year of high school as the point of the initial sampling is supported by several factors. First, the completion of high school represents the end of an important developmental stage in this society, since it represents both the end
of universal public education and, for many, the end of living in the parental home. Thus, it is a logical point at which to take stock of the cumulated influences of these two environments on American young people. Second, the completion of high school represents the jumping-off point from which young people diverge into widely differing social environments. Environments such as college, business firms, military service, and the like, are generally thought to have new and important socializing effects. Measurements taken near the end of twelfth grade represent the state of each graduating class before entering these environments.

Finally, there are some important practical advantages to building a system of data collections around samples of high school seniors. The last year of high school constitutes the final point at which a reasonably good national sample of an age-specific cohort can be drawn and studied with a degree of economy. The need for systematically repeated, large-scale samples from which to make reliable estimates of change requires that considerable emphasis be put on efficiency and feasibility; the present design meets those requirements (Bachman, Johnston & O'Malley, 1991).

**Omission of Dropouts from Senior Samples**

One limitation of the samples of high school seniors, according to Bachman et al. (1991), is that they do not include in the target population those young men and women who drop out of high school before the last few months of the senior year. For the purposes of estimating characteristics of the entire age group, the omission of high school dropouts does introduce certain biases; however, the low proportion of dropouts sets outer limits on the
bias. According to Johnson, recently published government statistics indicate a great deal of stability in dropout rates since 1975.

**Annual Data Collection**

The choice of an annual cycle of data collection, surveying each new senior class, adds greatly to the sensitivity of the indicators. The annual cycle permits a more rapid measurement response when a troubling new drug problem emerges. Bachman et al. (1991) contends, "The advent of crack is an excellent case in point: We were able to enter it into the Spring, 1986 measurement, soon after concern about it rose" (p. 9).

**Variables Measured**

**Overview and Conceptual Framework.**

For certain descriptive purposes it is useful to distinguish three broad areas of the measurement content from Monitoring the Future Survey.

1. "Monitored" Attitudes and Behaviors
2. Background and Demographic Characteristics
3. High School Experiences, Role Behaviors, and Satisfactions

**Monitored Variables**

**Drug Behaviors and Drug Attitudes**

The measures of AOD use, and drug-specific attitudes and beliefs, lie at the center of the survey (Bachman et al. 1991). Taking about 50 percent of the total items, the questionnaires
include extensive usage measures for licit and illicit substances, plus attitudes about use, beliefs about harmfulness, and a number of other factors relevant to each. Bachman and colleagues share, "this survey encompasses more classes of drugs than any other recent or ongoing, large-scale epidemiological investigation; furthermore, this series provides much more detailed information about most drugs, more than other studies. The results are made possible by the large numbers of cases being surveyed, which in turn permits the division of a very large amount of substantive content relating to drugs into the six different questionnaire forms used in the study" (p. 15). Form 6 was chosen for this researcher's study because of the completeness of the form, enabling a wide range of variables to be tested as to their fit in each of the five proposed constructs.

Other Relevant Social Values, Attitudes, and Behaviors

The other monitored variables that are measured repeatedly in the Monitoring the Future Survey include views about personal lifestyles, confidence in social institutions, intergroup and interpersonal relations and attitudes, and additional social and ethical issues. Taken together, these variables comprise roughly 30 percent of total questionnaire space (Bachman et al. 1991). Many of these dimensions are related to the changing life experiences of young adults in America, and many have been shown to relate—directly or indirectly—to changing patterns of AOD use.

Background Variables

A number of background dimensions are measured in the data collection, including sex, race, age, parental education (an
indicator of socio-economic level), region, and urbanicity. About 20 percent of the entire questionnaire is devoted to background. The importance of these factors to the various types of AOD use under study has been carefully documented (Bachman, O'Malley, & Johnston, 1986; Bachman, Wallace, Kurth, Johnston, & O'Malley, 1990; Wallace & Bachman, 1991). Johnston (1991) emphasizes their importance as control and conditioning variables in most multivariate analyses. Another 50 percent of the questions are related to AOD use and attitudes and behaviors toward AOD. In the five construct model used for this research, the background variables were chosen for their fit into the socio-environmental construct.

Experience, Role Behavior, and Satisfaction in High School Variables.

A number of measures of school performance and adjustment are included in the survey since their connection with the use of illegal drugs and with other delinquent behavior has been demonstrated (Bachman, O'Malley, & Johnston, 1980; Bachman, Johnston, & O'Malley, 1981; Bachman et al. 1986; Bachman, Schulenberg, O'Malley, & Johnston, 1990). Also included are the measures of the school social environment (peer norms, bases of peer status, student-teacher relations, counselor contact), student composition (in terms of sex, race, socioeconomic level), structural features of the school (size, curricular composition, AOD use prevention courses, curriculum of the student, and behavior of other students (delinquency, victimization, absenteeism, AOD use).
According to Johnston (cited in Bachman et al. 1991), a substantial proportion of American young people hold down paying jobs, while still in high school (Bachman, Bare, & Frankie, 1986; Bachman, Johnston, & O'Malley, 1981; Cole, 1980). It has generally been presumed by educators that such work would have a constructive influence on young people (Coleman, J. S., & the Panel on Youth, 1974). Some research has brought this assumption very much into question (Bachman, 1983; Bachman & Schulenberg, 1991; Bachman et al. 1981; Cole, 1980; Greenberger & Steinberg, 1979, 1986). Bachman et al. (1991) argue that the measures of hours worked, and income earned, during senior year, can be treated not only as dependent variables in relation to AOD use, but also as independent variables predictive of AOD use.

Also included in the questionnaires are certain measures of interpersonal relationships, particularly with parents. Perceived consistency in parent-child attitudes is measured in a number of domains. In addition, there are measures of serious fighting with parents, and satisfaction with relationships with parents. The quality of interpersonal relationships with key others in the respondent's life are also measured, for similar reasons. Finally, some detailed features of the major social environments in which the respondent is located are measured. All of these measures provide opportunities for defining important subgroups to be characterized separately in terms of AOD use and other behaviors.

Constructs, Subscales and Variables Used in the Theoretical Model

The broad content of the Form 6 questionnaire allowed the choice of numerous questions representing variables to be fit into the five
constructs, based on face validity and recommendations by experts in the field of substance abuse. The following chart illustrates the distribution of variables into each subscale and construct. The socio-environmental construct contains nine individual variables and a parental support subscales formulated from two variables. The interpersonal construct was developed using two subscales, also using multiple variables. The interpersonal construct contains four individual questions on bonding, and two subscales (school activities and delinquency), each containing multiple variables. AOD use and school outcomes constructs contain two and three subscales, respectively. AOD use is measured by the subscales of alcohol and other drug use, while school outcomes are measured by perceived academics, attendance and educational aspiration.

VALIDITY AND RELIABILITY

Two major sources of bias in survey results are non-representativeness in the sample and invalidity in the measures. Sampling error is an important source of inaccuracy, but is not considered a source of bias.

Representativeness of Samples (Lack of Bias)

The samples for this study are intended to provide an unbiased representation of high school seniors throughout the continental United States. This definition of the sample excludes one important portion of the age cohort, those who have dropped out of
high school before nearing the end of the senior year. Given the specific aim of representing high school seniors, it is useful to consider the extent to which the obtained samples of schools and students are likely to be representative of all seniors (i.e., unbiased), and also the degree to which the data obtained are likely to be valid (Bachman et al. 1991).

Bachman et al. (1991) distinguishes at least four ways in which the survey data collected in the Monitoring the Future Survey might fall short of being fully accurate: (1) some sampled schools refuse to participate, which could introduce some bias; (2) the failure to obtain questionnaire data from 100 percent of the students sampled in participating schools could also introduce bias; (3) the answers provided by participating students are open to both conscious and unconscious distortions, which could reduce validity; and (4) limitations in sample size and/or design place limits on the accuracy of estimates. The effects of this last factor are termed random sampling errors; these can be estimated statistically.

School Participation

When a school is unwilling or for some reason unable to participate, a substitute school is selected to match the originally sampled school in terms of geographic composition and size.

Student Participation

Usable questionnaires are obtained from about 83 percent of the seniors in the target sample (Bachman et al., 1991). Very few seniors, less than one percent, refuse to complete the questionnaires; most non-respondents are absent from school on the day of the administration. Since students with higher absentee rates tend
to have higher than average rates of drug use (Kandel, 1975; Bachman et al. 1981), missing them is likely to have some effect on drug use estimates.

**Omission of Dropouts**

The omission of dropouts from the sample has a greater impact on drug use prevalence rates than does the omission of absentees (Bachman et al. 1991). Estimates of drug prevalence rates among dropouts, based on data from a few studies that have included dropouts (Johnston, 1973; Abelson, Fishburne, & Cisin, 1977; Bachman, & Johnston, 1978; Fishburne, Abelson, & Cisin, 1980; NIDA, 1991a), can be used to determine an estimate for the overall age cohort.

**Validity of Self-Report Data**

A basic question in all survey work is the extent to which to believe what respondents say, i.e., what they say about their use of drugs. While this study includes no direct, objective validation of the self-report measures of drug use, a good deal of inferential evidence exists to support their validity (Bachman et al. 1991). This evidence is summarized as follows:

1) A considerable proportion of all respondents, ranging from 48 percent to 66 percent of each senior class, have admitted to some illicit drug use (Johnston et al. 1991).

2) Monitoring the Future data have shown some substantial and predictable relationships between self-reported drug use and other items dealing with attitudes about drug use, and with

3) Very few respondents decline to answer the drug use items, even though they are specifically instructed to leave blank any questions they feel they cannot answer honestly.

4) A number of methodological studies (e.g., Petzel, Johnson, & McKillip, 1973; Single, Kandel & Johnson, 1975) have included fictitious drugs in survey questionnaires. These fictitious drugs have shown very low levels of reported use, indicating that intentional overreporting is likely to be minimal.

5) Studies employing other data collection methods have shown similar prevalence rates of drug use for the same age group (Fishburne et al. 1980; Miller et al. 1983; NIDA, 1991b).

6) Methodological studies have utilized various methods to determine the validity of self-report data on illicit drug use and other illegal behaviors: urinalysis for drug use; polygraph verification; official police, court, medical, and treatment agency documents; and reports by peers, parents, and teachers. Gold (1977) reviewed the literature on self-reported delinquent behavior of adolescents and concluded that the best single measure of delinquent behavior available is self-report of delinquency, and that it is accurate enough
for use in rigorous research designs and with sophisticated statistics.

7) The aggregate level trends in reported friends' use tend to parallel very closely the trends in self-reported own use.

**Sampling Precision in Annual Surveys of Seniors**

The errors possible in an estimate based on a sample survey can be classified into two categories—sampling and non-sampling. The previous seven points discussed non-sampling errors. Sampling error occurs because observations are made on only a sample rather than the entire population under study. During the year of this study there were roughly three million seniors located in more than twenty thousand high schools, throughout the continental United States. The samples of about 17,000 seniors clustered in about 130 to 135 schools can provide close, but less than perfect, estimates of the responses that would be obtained if all seniors in all schools were asked to participate.

One cannot know for any particular statistic exactly how much error has resulted from sampling; however, one can make reasonably good estimates of confidence intervals, or ranges within which the value would be likely to fall if all schools and all seniors were invited to participate, rather than using only samples of seniors in samples of schools (Johnston, O'Malley, & Bachman, 1984). Bachman et al. (1991) noted that no 95 percent confidence intervals for the total sample in 1990, exceeded a value of $\pm 2.5$
percentage points. The majority of confidence intervals were $\pm 1.0$ percent or smaller.

**PROCEDURES**

Confidential questionnaires, usually administered during regularly-scheduled class periods, cover background and demographic characteristics, use of drugs, and a wide variety of other topics. Respondents are asked to provide their names and mailing addresses on forms which are then separated from the questionnaires, but linkable by code numbers accessible only to research staff.

According to Bachman et al. (1991), from the students' standpoint, the first information about the study usually consists of the teacher's announcement and the short descriptive flyer. In announcing the study, the teachers are asked to stress that the questionnaires used in the survey are not tests, and that there are no right or wrong answers. The flyer tells students that they will be invited to participate in the study, points out that their participation is strictly voluntary, and stresses confidentiality. The flyer gives all participating students a standardized introduction to the study, covers the crucial topics of voluntary participation and confidentiality, and presents some positive reasons for participation. It also provides something in writing which the students can show to their parents.

The questionnaire administration in each school is carried out by the local representatives of the Survey Resource Center and
their assistants, following standardized procedures detailed in a project instruction manual (Bachman et al. 1991). The questionnaires are administered in classrooms during normal class periods whenever possible; however, circumstances in some schools require the use of larger group administrations. Teachers are not asked to do anything more than introduce the SRC staff members and remain present in order to help guarantee an orderly atmosphere for the survey. Teachers are urged to avoid walking around the room, lest students feel that their answers might be observed.

The actual process of completing the questionnaires is quite straightforward. Respondents are given sharpened pencils and asked to use them because the questionnaires are designed for automatic scanning. Most respondents can finish within a 45-minute class period; for those who cannot, an effort is made to provide a few minutes of additional time.

Procedures are used that assure that participation is voluntary and that confidentiality is protected (Bachman et al. 1991). Bachman and colleagues confirm, "In any study that relies on voluntary reporting of drug use, it is essential to develop procedures which guarantee the confidentiality of such reports. It is also desirable that these procedures be described adequately to respondents so that they are comfortable about providing honest answers, and so that the voluntary nature of their participation be made clear" (p. 32).
DATA ANALYSIS OF FORM 6

Initially, variables were chosen out of Form 6 to fit in each construct by using face validity. Recoding of questions to insure interval and dichotomous structure was completed. Some questions were recoded to change the polarity of the responses so correlations were easier to interpret. The five constructs were divided into subscales, leading to greater validity and reliability by having multiple items to measure theoretical constructs (See Table 1). The multiple indicators, forming the subscales, were used to operationalize the major constructs. The extent to which constructs actually predict will also add to the construct validity of the model.

Measurement Of Variables In Form 6

The research design and data analyzed were intended to examine the relationships between five sets of variables formed into constructs. The first set of variables is the socio-environmental characteristics. These include gender, ethnicity, urbanicity, family, father's education, political beliefs, student's work hours, church attendance and parental support of homework. Age was not a variable because the students in the survey were all high school seniors. The second set of independent variables was intrapersonal characteristics. These include a subset of school intrapersonal characteristics such as school assignment responsibility, school behavior, skipping school, fooling around in school, enjoying school and being suspended or expelled from school. This group of
variables indicated a rating of self-discipline in school. Another subset of variables was organized into a subscale named self-intrapersonal characteristics. These variables measured the view a student expressed about him or herself. These variables included areas of responsibility to wear a seat belt, satisfaction with life, positive attitude toward self, feeling worthy as a person, enjoying life, performing functions well, satisfaction with oneself, and feeling good about being alive.

The third set of variables was the interpersonal characteristics. The individual variables measured included fighting with parents, involvement in community affairs, being with friends, and view on religion. These variables were chosen to help measure the bonding of the students to different parts of society and family. A subscale labeled school activities was formulated from questions regarding involvement in the school newspaper/yearbook, music and arts, school sports, academic clubs, student council or other school clubs. The fourth set of variables, the AOD use construct, was divided into two subscales including alcohol use in the last 30 days and other drug use in the last year.

School outcomes formed the fifth set of variables and were divided into three subscales. The academic subscale included variables measuring perceived ability compared to others, perceived intelligence compared to others, earning mostly A's and B's and a scale to measure their high school average using a scale from A to D.

The second subscale measured attendance and used variables measuring skipping school or skipping class. The last subscale in
### TABLE 1
Survey Questions

<table>
<thead>
<tr>
<th>Description</th>
<th>Question</th>
<th>Variable#</th>
<th>Recoding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Socio-environmental Construct</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>C3</td>
<td>v6150</td>
<td></td>
</tr>
<tr>
<td>Ethnicity</td>
<td>C4</td>
<td>v6151</td>
<td></td>
</tr>
<tr>
<td>Urbanicity</td>
<td>C5</td>
<td>v6152</td>
<td>If (v6152 \leq 5) then Grewub=1; else Grewub=2</td>
</tr>
<tr>
<td>Family structure</td>
<td>C7c1-9</td>
<td>v6154-6161</td>
<td>If (v6155=1) and (v6156=1) then Family=1; else Family=0</td>
</tr>
<tr>
<td>Father’s Education</td>
<td>C8</td>
<td>v6163</td>
<td></td>
</tr>
<tr>
<td>Student’s work</td>
<td>C23</td>
<td>v6191</td>
<td></td>
</tr>
<tr>
<td>Church Attendance</td>
<td>C13b</td>
<td>v6169</td>
<td></td>
</tr>
<tr>
<td>Work Hours</td>
<td>C23</td>
<td>v6191</td>
<td></td>
</tr>
<tr>
<td>Parental support</td>
<td>A8a,b</td>
<td>v6491,v6492</td>
<td>Parsup=sum ((v6491 \cdot v6492))</td>
</tr>
<tr>
<td>Political belief</td>
<td>C12</td>
<td>v6167</td>
<td></td>
</tr>
<tr>
<td><strong>Intrapersonal Characteristics Construct</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intrapersonal school</td>
<td>A6f,A6h,A6i</td>
<td>v6229,v6231,v6232</td>
<td>Schintr=sum ((n6229 \cdot n6231 \cdot n6232))*</td>
</tr>
<tr>
<td></td>
<td>A6e,A6a,A13</td>
<td>v6228,v6224,v6496</td>
<td>n6232 \cdot n6228 \cdot n6224 \cdot n6496*</td>
</tr>
<tr>
<td>Intrapersonal self</td>
<td>C32,A1,D1a</td>
<td>v6205,v6207,v6353</td>
<td>Sefintr=Sum ((v6205 \cdot v6207 \cdot v6353))*</td>
</tr>
<tr>
<td></td>
<td>D1e,D1f,D1i</td>
<td>v6357,v6358,v6361</td>
<td>v6357 \cdot v6358 \cdot v6361 \cdot v6365 \cdot v6367)</td>
</tr>
<tr>
<td></td>
<td>D1m,D1o</td>
<td>v6365,v6367</td>
<td></td>
</tr>
<tr>
<td><strong>Interpersonal Characteristics Construct</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Fight with parents</td>
<td>A17a</td>
<td>v6280</td>
<td>n6280*</td>
</tr>
<tr>
<td>Be with friends</td>
<td>A2g</td>
<td>v6214</td>
<td></td>
</tr>
<tr>
<td>In community affairs</td>
<td>A2e</td>
<td>v6212</td>
<td></td>
</tr>
<tr>
<td>Impressed-religion</td>
<td>C13c</td>
<td>v6170</td>
<td></td>
</tr>
<tr>
<td>School activities</td>
<td>A9a-f</td>
<td>v6251,v6256</td>
<td>Schact=sum ((v6251 \cdot v6252 \cdot v6253 \cdot v6254 \cdot v6255 \cdot v6256))</td>
</tr>
<tr>
<td>Delinquency</td>
<td>A17n-q</td>
<td>v6293,v6294,</td>
<td>Delinter=sum ((v6293 \cdot v6294 \cdot v6296 \cdot v6282))</td>
</tr>
<tr>
<td></td>
<td>A17c</td>
<td>v6282,v6296</td>
<td></td>
</tr>
</tbody>
</table>

\*n variables were formed by the following equation: \(n##=#=(6-v####)\)
<table>
<thead>
<tr>
<th>Description</th>
<th>Question</th>
<th>Variable#</th>
<th>Recoding</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Reported Drug Use Construct</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol-30 days</td>
<td>D2c</td>
<td>v6499</td>
<td>Drugyr=sum (v6116 v6119 v6122 v6128</td>
</tr>
<tr>
<td>Other drugs-year</td>
<td>B7b,B8b,B9b</td>
<td>v6116,v6119,v6122</td>
<td>v6125 v6134 v6137 v6140 v6143 v6146)</td>
</tr>
<tr>
<td></td>
<td>B10b,B12b</td>
<td>v6128,v6125</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B13b,B14b</td>
<td>v6134,v6137</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B15b,B16b</td>
<td>v6140,v6143</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B17b</td>
<td>v6146</td>
<td></td>
</tr>
<tr>
<td>AOD Use</td>
<td>D2e,B7b,B8b</td>
<td>v6499,v6116,v6119</td>
<td>AOD Use=sum (v6499 v6116 v6119</td>
</tr>
<tr>
<td></td>
<td>B9b,B10b</td>
<td>v6122</td>
<td>v6122 v6128 v6125 v6134 v6137 v6140 v6143 v6146)</td>
</tr>
<tr>
<td></td>
<td>B12b,B13b</td>
<td>v6125,v6134</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B14b,B15b</td>
<td>v6137,v6140</td>
<td></td>
</tr>
<tr>
<td></td>
<td>B16b,B17b</td>
<td>v6143,v6146</td>
<td></td>
</tr>
<tr>
<td><strong>School Outcomes Construct</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic</td>
<td>C16,C17,A6g</td>
<td>v6173,v6174,v6230</td>
<td>Academic=sum (v6230 v6179 v6226 v6173 v6174)</td>
</tr>
<tr>
<td></td>
<td>C20,A6c</td>
<td>v6179,v6226</td>
<td></td>
</tr>
<tr>
<td>Attendance</td>
<td>C18b,C19</td>
<td>v6176,v6178</td>
<td>Attend=sum (n6175 n6178)*</td>
</tr>
<tr>
<td></td>
<td>C21a-d</td>
<td>v6180-v6183</td>
<td></td>
</tr>
<tr>
<td>Aspiration</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* n variables were formed by the following equation:  n####=(8-v####)
school outcomes was that of educational aspiration. Four different survey questions inquired as to their aspiration for vocational or technical school, the armed services, two year college or four year college.

Table 2 reflects the five different sets of variables, the type of single variables and subscales (interval variables) used to operationalize the constructs, the range of the response options and the frequency distribution. In addition, the interval variables reflect a measurement of standard deviation, skewness and kurtosis.

As noted on Table 2, three of the interval variables were manipulated by use of the Log10 function in order to improve the skewness and kurtosis, making the variables more usable in the multiple regression. In theoretical model one, an interval variable was created by combining the responses and alcohol and other drug use into one dependent variable designated as AOD use. In contrast, model 2, used alcohol and other drug use as two separate independent variables to see their effect on school outcomes.

**Predictors**

The predictors used in this study are listed in the next section along with their level of measurement and Cronbach's Alpha Coefficient (a measure of internal consistency for scales).

**Socio-environmental Characteristics**

These were the demographics and environmental influences.

**Gender.** Male or female (coded 1=male and 2=female)
<table>
<thead>
<tr>
<th>Construct</th>
<th>Variable</th>
<th>Type</th>
<th>Coding</th>
<th>Descriptive</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-environ</td>
<td>Gender</td>
<td>Dichot</td>
<td>1, 2</td>
<td>Male/Female (48%, 52%)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Ethnicity</td>
<td>Dichot</td>
<td>0, 1</td>
<td>White/Black (80%, 20%)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Urbanicity</td>
<td>Dichot</td>
<td>1, 2</td>
<td>Small/Large (69%, 31%)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Family</td>
<td>Dichot</td>
<td>0, 1</td>
<td>Non-nuclear/Nuclear (33%, 67%)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Parent's Support</td>
<td>Interval</td>
<td>2, 8</td>
<td>Never/Often (X=4.81, SD=1.80, S=.05, K=-.92)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Father's Education</td>
<td>Ordinal</td>
<td>1, 6</td>
<td>Minimum/Maximum (4%, 12%, 26%, 33%, 16%, 5%)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Political</td>
<td>Ordinal</td>
<td>1, 6</td>
<td>Conservative/Liberal (6%, 18%, 40%, 24%, 7%, 5%)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Attend Church</td>
<td>Ordinal</td>
<td>1, 4</td>
<td>None/Once a Week (15%, 36%, 17%, 31%)</td>
</tr>
<tr>
<td>Socio-environ</td>
<td>Work Hours</td>
<td>Ordinal</td>
<td>1, 8</td>
<td>Small/Large (25%, 10%, 10%, 12%, 17%, 12%, 8%, 8%)</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>School Intra</td>
<td>Interval</td>
<td>6, 26</td>
<td>Responsible/Irresponsible (X=23.17, SD=3.44, S=.73, K=.76)</td>
</tr>
<tr>
<td>Intrapersonal</td>
<td>Self Intra</td>
<td>Interval</td>
<td>11, 42</td>
<td>Low/High Self Esteem (X=31.46, SD=8.90, S=1.61, K=2.29)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Sch Activities</td>
<td>Interval</td>
<td>6, 12</td>
<td>None/Many (X=8.41, SD=1.67, S=.24, K=.56)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Delinquency</td>
<td>Interval</td>
<td>4, 20</td>
<td>Low/High (X=4.96, SD=1.92, S=1.61, K=4.05*)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Parent-Bonding</td>
<td>Ordinal</td>
<td>1, 5</td>
<td>None/High (15%, 11%, 13%, 22%, 40%)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Comm-Bonding</td>
<td>Ordinal</td>
<td>1, 5</td>
<td>Never/Daily (32%, 41%, 16%, 8%, 3%)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Friends-Bonding</td>
<td>Ordinal</td>
<td>1, 5</td>
<td>Never/Daily (1%, 3%, 10%, 40%, 46%)</td>
</tr>
<tr>
<td>Interpersonal</td>
<td>Religion-Bonding</td>
<td>Ordinal</td>
<td>1, 4</td>
<td>Not Impressed/Impressed (15%, 27%, 29%, 30%)</td>
</tr>
<tr>
<td>Alcohol</td>
<td>Alcohol Use-30 Day</td>
<td>Interval</td>
<td>1, 2</td>
<td>None/High (X=1.39, SD=.49, S=.44, K=1.80)</td>
</tr>
<tr>
<td>Drug</td>
<td>Drug Use-1 Year</td>
<td>Interval</td>
<td>1, 11</td>
<td>None/High (X=1.76, SD=1.71, S=1.67, K=2.17*)</td>
</tr>
<tr>
<td>AOD Use</td>
<td>Alcohol &amp; Drug Use</td>
<td>Interval</td>
<td>2, 12</td>
<td>None/High (X=3.17, SD=1.92, S=1.34, K=1.53*)</td>
</tr>
<tr>
<td>School Oute</td>
<td>Attendance</td>
<td>Interval</td>
<td>2, 13</td>
<td>Low/High (X=3.32, SD=1.90, S=1.37, K=1.32)</td>
</tr>
<tr>
<td>School Oute</td>
<td>Academic</td>
<td>Interval</td>
<td>6, 33</td>
<td>Low/High (X=23, SD=4.80, S=.09, K=-.48)</td>
</tr>
<tr>
<td>School Oute</td>
<td>Aspiration</td>
<td>Interval</td>
<td>1, 5</td>
<td>Low/High (X=3.83, SD=.97, S=1.9, K=3.45)</td>
</tr>
</tbody>
</table>

* Skewness and kurtosis acquired through the Log10 function
Ethnicity. White/Caucasian or Black/African-American (coded 0=Caucasian and 1=African-American)

Urbanicity. Nine responses were available, varying from a farm, in the country, not on a farm, in a small city of town, in a medium sized city, in a suburb of a medium sized city, in a large city, in a suburb of a large city, in a very large city, or lastly, in a suburb of a very large city. This variable was recoded as Grewub where responses equal to or less than five (i.e., living in a rural to medium city) were recoded as 1, and others (large cities) were recoded as 2.

Family Structure. Eight questions were available inquiring whether the student lived alone, with their father, with their mother, with their brother or sister, with their husband or wife, with their children, or with other relatives. The responses to these questions were recoded to indicate a nuclear family, i.e., living with their mother and father, or otherwise, which was considered a non-nuclear family. A nuclear family was recoded to 1, while the non-nuclear family was recoded to 0.

Father's Schooling. The question offered six possible responses ranging from completed grade school or less, some high school, completed high school, some college, completed college, or graduate or professional school.

Political Belief. Six possible responses were offered ranging from very conservative, conservative, moderate, liberal, very liberal or radical.

Student's Job Hours. The question allowed eight possible responses varying from none, 5 or less hours, 6 to 10 hours, 11 to
15 hours, 16 to 20 hours, 21 to 25 hours, 26 to 30 hours, or more than 30 hours.

Religiosity. Four possible responses were solicited regarding church attendance which varied from never, rarely, once or twice a month or about once a week or more.

Parental support. This subscale was developed from two questions. The first questioned inquired about parents checking the students homework and offered four responses to the question. The responses varied from never, rarely, sometimes or often. The same set of responses were available to a question asking if parents helped with homework. The subscale was labeled Parsup and was coded as the sum of the responses to the two questions (Alpha=.54).

Intrapersonal Characteristics

These independent/predictor variables were used to measure self-discipline in school and self-esteem or self-perception. The two subscales developed for this construct were School Intrapersonal (Schintr) and Self Intrapersonal (Selfintr).

School Intrapersonal. Six questions were used to develop this subscale (Alpha=.62). The sum of the responses was used for the scale. The first five questions used an identical scale with five responses varying from never, seldom, sometimes, often or almost always. The questions asked were:

- How often did you fail to complete or turn in an assignment?
- How often did you get sent to the office, or have to stay after school, because you misbehaved?
- How often did you skip a day of school, or part of a day 
  (without permission)?
- How often did you fool around in class?
- How often did you enjoy being in school?

The last question used to make up this subscale offered three responses to the following question.
- Have you ever been suspended or expelled from school?

The three response selections were no, yes-one time, or yes-two or more times.

**Self Intrapersonal.** Eight questions were used to formulate this subscale (Alpha=.79). The first question asked how often the student wore a seat belt and offered five possible responses including never, seldom, sometimes, often or always. A question on the student's satisfaction with life contained a range of responses from completely dissatisfied, quite dissatisfied, somewhat dissatisfied, neither or mixed feelings, somewhat satisfied, quite satisfied or completely satisfied. The next six questions offered the identical scale of responses ranging from disagree, mostly disagree, neither, mostly agree or agree. The statements were introduced with the following question: How much do you agree or disagree with each of the following statements?
  - I take a positive attitude toward myself
  - I feel I am a person of worth, on an equal plane with others
  - I enjoy life as much as anyone
  - I am able to do things as well as most other people
  - On the whole, I am satisfied with myself
  - It feels good to be alive

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Interpersonal Characteristics

These variables were selected to measure bonding with different parts of society, socialization, involvement in school activities, and delinquency.

Bonding—Parents. This question asked how often in the last 12 months the student argued or had a fight with either of their parents. The responses were not at all, once, twice, 3 or 4 times, or 5 or more times.

Bonding—Community. This survey question asked the student how often they participated in community affairs or volunteer work. The responses were almost every day, a least once a week, once or twice a month, a few times a year or never.

Bonding—Friends. The identical set of responses was available for the question asking the student how often they get together with their friends informally.

Bonding—Religion. "How important is religion in your life?" The available responses were not important, a little important, pretty important or very important.

School Activities. These six questions used to form a scale (Alpha=.63), asked how often the student was involved in the following activities:

- School newspaper or yearbook
- Music or other performing arts
- Athletic teams
- Academic clubs (e.g., science, math, and language)
- Student council or government
- Other school clubs or activities
The range of responses was not at all, slight, moderate, considerable or great extent.

**Delinquency.** Four questions inquired as to how often during the last twelve months had they:
- Damaged school property on purpose
- Damaged property at work on purpose
- Gotten into trouble with police because of something you did
- Gotten into a serious fight in school or work

The range of responses were not at all, once, twice, 3 or 4 times, or 5 or more times. The sum of the responses were tallied and recoded to the subscale Delinter (Alpha=.62).

**Dependent Variables**

**AOD Use**

This dependent set of variables in the initial model was divided originally into four subscales:

- Alcohol use in the last 30 days
- Alcohol use in the last year
- Other drug use in the last 30 days
- Other drug use in the last year

After preliminary correlation and multiple regression analysis, the decision was made to use alcohol in the last 30 days and other drug use in the last year.


**Alcohol Use in the Last 30 Days.** The question monitored use using the following seven responses to the inquiry about the number of occasions they have been drunk or very high from drinking alcoholic beverages. Their choice of responses included 0 occasions, 1-2, 3-5, 6-9, 10-19, 20-39, or 40 or more.

**Other Drug Use in the Last 12 Months.** Ten categories of types of drugs were included in the inquiry. These included marijuana, LSD, other psychedelics, amphetamines, cocaine, barbiturates, tranquilizers, heroin, other narcotics and inhalants. For a detailed description of the drug categories see Appendix C. The response options were 0 occasions, 1-2, 3-5, 6-9, 10-19, 20-39, or 40 or more. (Each individual drug inquiry question was recoded to 1=0 occasions and 2=some use). The sums of the responses were totaled to describe the subscale of Drugyr (Alpha=.80). The variables were later recoded to 1=no drug use, 2=some; responses were summed so as to produce a range from 1 to 11. Note that in model one (See Figure 3), AOD is measured by combining the two subscales and entering them as one dependent variable into the regression model. In model two (See Figure 4), AOD was divided into the two subscales, and each variable representing a subscale was entered into the regression model as an independent variable.

**School Outcomes**

This construct consists of three subscales consisting of perceived academics, school attendance, and educational aspiration.
**Academic.** This subscale (Alpha=.79) measures the perception of the student as to ability and intelligence, grades and effort in school.
The first two questions offered seven responses to the following two questions:
- Compared with others your age throughout the country, how do you rate yourself on school ability?
- How intelligent do you think you are compared with others your age?
The responses offered are far below average, below average, slightly below average, average, slightly above average, above average or far above average. The next question asks the student to rate their cumulative grade average for their high school years into the traditional A through D range. The last two questions refer to earning mostly A's and B's, and doing your best in school. The five response scale ranges from never, seldom, sometimes, often or almost always. The sum of the responses for the six questions are used to form the subscale Academic.

**Attendance.** The two questions producing data for the attendance subscale inquired how often they had skipped school or skipped class. The first question offered responses ranging from none, 1 day, 2 days, 3 days, 4-5 days, 6-10 days, or 11 or more. The skipping class question responses included not at all, 1 or 2 times, 3-5 times, 6-10 times, 11-20 times, or more than 20 times. The sum of the responses for these two questions was used for the subscale of Attend (Alpha=.63).
Educational Aspiration. There are four questions included in this subscale. The questions inquire about the student's aspiration to attend vocational school or technical school, to join the armed forces, to attend a two year college and/or to attend a four year college. Each of the questions could be answered definitely won't, probably won't, probably will, or definitely well. Responses were recoded to indicate one of the four options or a combination of the options.

STATISTICAL ANALYSIS

This study identified a sample of high school seniors, randomly selected from schools in four geographic areas of the mainland United States. There was no manipulation of the variables, as the research was ex-post facto. Data analysis was conducted in several stages.

The first steps were aimed at identifying frequencies and means of each survey question to establish the distribution and quality of the question. Eighty variables were initially tested. Some questions were recoded to achieve a more even distribution of response categories (See Table 2). A second correlational matrix of the total group of variables was operationalized to begin studying the relationships. Some questions were recoded so that questions in each construct would be internally consistent. Some variables were dropped because they were highly correlated (or not correlated with the dependent variables).
The next step was to assign variables to a construct using face validity. A correlational matrix and Cronbach's Alpha were run on each construct to determine the fit of the questions to the labeled construct (construct validity). At this point the information provided was used to formulate the final subscales (See Table 3), and correlational matrixes and Cronbach's Alpha were rerun on the subscales. Table 4 provides a correlation matrix of the final variables in the model.

Once the variables were recoded to fit into the correct constructs and subscales, and the final set of variables determined, the regression analysis proceeded to test the relevant hypotheses. Regression analysis was first run on model 1, in order to investigate the amount of variability accounted for by socio-environment set of variables, and the intrapersonal and interpersonal set of variables on the dependent set of variables, this being AOD use. Next an analysis was initiated to determine how much of the variability of the dependent variables were accounted for by the sets of independent variables in the theoretical model two.

The first stage entered the socio-environmental variables and regressed them on the various subscales of school outcomes which included academic, school attendance and educational aspiration. Separate models were developed for each of these variables. The second stage included the intrapersonal variables with socio-environmental variables and investigated their relationship to the three measures of school outcomes. The third stage added the interpersonal variables to investigate their added effect. The last
TABLE 3

Mean, Standard Deviation, Skewness, Kurtosis, and Tests of Normality on the Interval Variables in the Model

<table>
<thead>
<tr>
<th>Interval Variables</th>
<th>X</th>
<th>SD</th>
<th>S</th>
<th>K</th>
</tr>
</thead>
<tbody>
<tr>
<td>Socio-environmental</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Parsup</td>
<td>4.81</td>
<td>1.80</td>
<td>0.05</td>
<td>-0.93</td>
</tr>
<tr>
<td>Intrapersonal</td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schintr</td>
<td>23.18</td>
<td>3.44</td>
<td>-0.72</td>
<td>0.76</td>
</tr>
<tr>
<td>Selfintr</td>
<td>31.46</td>
<td>8.90</td>
<td>-1.61</td>
<td>2.29</td>
</tr>
<tr>
<td>Interpersonal</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Schact</td>
<td>8.41</td>
<td>1.67</td>
<td>0.24</td>
<td>-0.56</td>
</tr>
<tr>
<td>Delinter</td>
<td>4.96</td>
<td>1.92</td>
<td>2.99</td>
<td>11.42</td>
</tr>
<tr>
<td>AOD Use</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alcohol (v6499)</td>
<td>1.39</td>
<td>0.49</td>
<td>0.44</td>
<td>-1.80</td>
</tr>
<tr>
<td>Drugyr</td>
<td>1.78</td>
<td>1.71</td>
<td>3.40</td>
<td>13.06</td>
</tr>
<tr>
<td>Druguse</td>
<td>3.17</td>
<td>1.92</td>
<td>2.85</td>
<td>9.71</td>
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<tr>
<td>School Outcomes</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Academic</td>
<td>23.02</td>
<td>4.80</td>
<td>-0.09</td>
<td>-0.48</td>
</tr>
<tr>
<td>Attend</td>
<td>12.68</td>
<td>1.90</td>
<td>-1.89</td>
<td>3.68</td>
</tr>
<tr>
<td>Aspire</td>
<td>3.83</td>
<td>0.97</td>
<td>-1.43</td>
<td>1.98</td>
</tr>
<tr>
<td>Modified Variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Newdel=Log10(Delinter)*</td>
<td>0.67</td>
<td>0.13</td>
<td>1.61</td>
<td>4.05</td>
</tr>
<tr>
<td>Newdyr=Log10(Drugyr)*</td>
<td>0.15</td>
<td>0.25</td>
<td>1.67</td>
<td>2.17</td>
</tr>
<tr>
<td>Newdguse=Log10(Druguse)*</td>
<td>0.45</td>
<td>0.19</td>
<td>1.34</td>
<td>1.53</td>
</tr>
</tbody>
</table>

*Above intervals were modified with Log10 function to improve skewness and kurtosis
TABLE 4
Correlational Matrix

| Construct Variable | 1   | 2   | 3   | 4   | 5   | 6   | 7   | 8   | 9   | 10  | 11  | 12  | 13  | 14  | 15  | 16  | 17  | 18  | 19  | 20  | 21  | 22  |
|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Se 1 Gender        | 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 2 Ethnicity     | 0.04| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 3 Urbanicity    | -0.02| 0.22| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 4 Family        | -0.04| -0.31| -0.09| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 5 Father's Sch  | -0.04| -0.15| 0.06| 0.14| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 6 Attend Chur   | 0.04| 0.04| -0.01| 0.14| 0.09| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 7 Work Hours    | -0.04| -0.17| -0.01| 0.03| -0.14| -0.08| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 8 Pausup        | 0.00| 0.07| -0.02| 0.08| 0.09| 0.11| -0.09| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Se 9 Politic Belief| 0.01| 0.10| 0.06| -0.09| 0.02| -0.13| 0.01| -0.04| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Intra 10 Schintri  | 0.25| 0.02| 0.00| 0.10| 0.08| 0.23| -0.14| 0.14| -0.07| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |     |
| Intra 11 Selfintri | -0.02| -0.03| -0.04| 0.09| 0.08| 0.11| -0.10| 0.13| -0.07| 0.19| 1.00|     |     |     |     |     |     |     |     |     |     |     |     |
| Inter 12 Schact    | 0.12| 0.02| -0.01| 0.09| 0.14| 0.21| -0.10| 0.10| 0.00| 0.23| 0.14| 1.00|     |     |     |     |     |     |     |     |     |     |     |
| Inter 13 Newdel    | -0.29| -0.09| 0.02| -0.04| -0.01| -0.14| 0.14| -0.08| 0.10| -0.43| -0.14| -0.12| 1.00|     |     |     |     |     |     |     |     |     |     |
| Inter 14 Community | 0.14| 0.02| 0.02| 0.10| 0.11| 0.24| -0.05| 0.07| -0.01| 0.26| 0.13| 0.34| -0.12| 1.00|     |     |     |     |     |     |     |     |     |
| Inter 15 Friends   | -0.15| -0.01| -0.01| 0.04| 0.11| -0.06| 0.02| -0.01| 0.05| -0.18| 0.02| 0.02| 0.14| 0.00| 1.00|     |     |     |     |     |     |     |
| Inter 16 Religion  | 0.10| 0.23| 0.01| 0.02| 0.00| 0.59| -0.08| 0.13| -0.15| 0.21| 0.11| 0.14| -0.20| 0.20| -0.10| 1.00|     |     |     |     |     |     |
| Inter 17 Parents   | -0.09| 0.22| 0.01| -0.06| -0.07| 0.08| -0.09| 0.14| -0.08| 0.20| 0.12| 0.00| -0.18| 0.00| -0.11| 0.16| 1.00|     |     |     |     |     |
| Alcohol 18 Alcohol | -0.11| -0.13| -0.01| -0.04| 0.03| -0.18| 0.09| -0.04| 0.08| -0.30| -0.23| -0.09| 0.25| -0.12| 0.20| -0.18| -0.10| 1.00|     |     |     |
| Drug 19 Newdrug    | -0.08| -0.13| 0.02| -0.02| -0.03| 0.21| 0.11| -0.09| 0.10| -0.36| -0.17| -0.16| 0.34| -0.16| 0.15| -0.21| -0.10| 0.40| 1.00|     |     |
| Sch Outc 20 Academic| 0.08| -0.10| 0.02| 0.15| 0.23| -0.21| -0.13| 0.01| 0.00| 0.45| 0.28| 0.34| 0.19| 0.28| -0.05| 0.14| 0.04| -0.17| -0.21| 1.00|     |
| Sch Outc 21 Attendance| 0.07| -0.02| 0.03| 0.10| 0.04| 0.16| -0.07| 0.12| -0.06| 0.51| 0.10| 0.07| -0.26| 0.12| -0.11| 0.11| 0.13| -0.22| -0.30| 0.24| 1.00|
| Sch Outc 22 Aspiration| -0.09| 0.10| 0.06| -0.04| 0.12| 0.07| -0.06| 0.02| 0.01| 0.03| -0.08| 0.19| 0.00| 0.11| 0.07| 0.05| 0.01| 0.01| -0.07| 0.14| 0.00| 1.00|

Note: Correlations greater than .04 are significant (p < .05)
stage added the AOD use variable to establish this effect. The AOD use variable is composed of two subscales measuring alcohol use in the last 30 days and drug use in the last year as a final set of variables influencing the school outcomes.

Several models were therefore established using the strongest predictor variables for each subscale and construct to establish the best combination of predictors for AOD use and school outcomes. Individual parameters were tested for significance at \( p = .05 \).

**How Data Analysis Was Conducted**

Data analysis was conducted by using the ISPF (Interactive System Productivity Facility) software that runs under TSO (Time Sharing Option) on the IBM ES/9000 mainframe computer. The SAS (1991) Program was used for the statistical analysis.
CHAPTER IV. RESULTS OF THE STUDY

DISCUSSION OF METHODS AND RESULTS

This chapter examines relationships between socio-environmental characteristics, intrapersonal and interpersonal characteristics, AOD use, and school outcomes. Those relationships, which are represented by three null hypotheses, are at the heart of the theoretical issues mentioned earlier in Chapter I. A fourth research question regarding the best predictors of AOD use and school outcomes will also be examined.

The findings in this chapter are presented in three sections that reflect the two theoretical models and their ability to predict the specific outcomes investigated. The first section deals with the relationship between socio-environmental characteristics, intrapersonal and interpersonal characteristics, and the dependent variable, AOD use. Multiple regression is the technique used to examine this relationship investigated in research question one.

The second section of this chapter deals with the relationship between socio-environmental characteristics, intrapersonal and interpersonal characteristics, AOD use (used as a predictor), and the three sets of dependent variables representing school outcomes. Each of the three subscales of school outcomes (perceived academics, attendance and educational aspiration) are regressed against the four
sets of independent variables (See Figure 2 in Chapter II). Multiple regression is used to examine research questions two and three to determine whether perceived academics, school attendance, or educational aspiration is influenced by socio-environmental characteristics, intrapersonal and interpersonal characteristics, and by AOD use. The third section deals with the two models and their predictability of AOD use, and school outcomes. Multiple regression is also used in these analyses.

SOCIO-ENVIRONMENTAL CHARACTERISTICS, INTRAPERSONAL AND INTERPERSONAL CHARACTERISTICS, AND AOD USE

Research Question 1: Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, and AOD use? The stated null hypothesis is: There is no significant relationship between the socio-environmental, intrapersonal and interpersonal characteristics, and AOD use.

Testing of the null hypothesis with multiple regression was preceded by first examining the seventeen variables used as independent variables in a correlation matrix (See Figure 4). Intercorrelations between all possible pairs of variables did not exceed the statistical benchmark of .80 set to define multicollinearity in this study. Most of the correlation coefficients fell in the .10 to .20 range. The generally low intercorrelations in this set of variables indicated that all 17 variables used in the multiple regression were worth retaining for the analyses.
Tables 5, 6 and 7 show the contribution of each set of predictors in explaining student AOD use. The Beta coefficient is the unstandardized coefficient, indicating the unit of change in each independent variable per unit of change in AOD use. T-tests were used to determine whether each parameter in the model was significant (i.e., a t-value of 1.96 or larger is considered significant, where p<.05). As seen in Table 5, socio-environmental factors are significantly related to AOD use (F=19.51, p < .05). Five socio-environmental variables are significant including gender, ethnicity, church attendance, hours of work, and political beliefs.

The R-square states the amount of the variance accounted for by the cumulative effects of each set of variables as they are introduced into the model. The socio-environmental set of variables accounted for 11% (R-square) of the variance in AOD use (Table 5). Next the intrapersonal variables, which consisted of two subscales comprised of multiple variables, were added and the model then accounted for 23% of the variance in AOD use (Table 6). Lastly, the interpersonal construct variables were added (Table 7), consisting of two subscales (school activities and delinquency) and four single variables. An additional 5% of the variance was accounted for, totaling 28% accounted for by regressing the three independent constructs against the dependent variable.

---

1 Because of transformations, the betas for AOD use are very small in Tables 5-7.
2 For purposes of defending the order of entry into the regression, a multiple regression was run after changing the order of entry of the constructs feeding into the model. No appreciable difference was noted, allowing an assumption that the order of entry was not a key component of measuring accountability from the constructs.
Table 7 presents the full model. Variables from the three sets of independent variables help explain AOD use. Taking a closer look at the variables in each set, one observes that the three most influential variables in the socio-environment set were ethnicity, gender, and church attendance. For example, the African-Americans, women, those with more conservative political views, and those attending church regularly were less likely to be involved in AOD use. The same three variables maintained significance when the second stage (intrapersonal) variables were added to the model. Both intrapersonal subscales were also significant predictors. After entering the third set of predictors (interpersonal), the subscale delinquency was significant. Additionally, bonding with friends was also significant.

In summary, the full model in Table 7 shows the model accounted for 28% of the variance in the dependent variable, AOD use. On the basis of the regression model, the null hypothesis was rejected and the alternative hypothesis accepted. Socio-environmental, intrapersonal, and interpersonal characteristics affect adolescents’ substance abuse.

SOCIO-ENVIRONMENTAL CHARACTERISTICS,
INTRAPERSONAL AND INTERPERSONAL
CHARACTERISTICS, AND SCHOOL OUTCOMES

Research Question 2: Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, and school outcomes? The stated null hypothesis is: There is no
TABLE 5

Socio-environmental Characteristics, and AOD Use

Model 1 Stage 1

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<th>T</th>
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<td>-1.82</td>
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<tr>
<td>Political Beliefs</td>
<td>0.02</td>
<td>0.00 **</td>
<td>4.91 *</td>
</tr>
</tbody>
</table>

Model F(9)=27.55*
R-square=.11
AOD Use Mean=.44

Note: * p<.05
**SE > 0.000, and < 0.005
### TABLE 6

Socio-environmental and Intrapersonal Characteristics, and AOD Use

Model 1 Stage 2

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<td>0.00**</td>
<td>4.11*</td>
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<tr>
<td>Self Intra</td>
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<td>0.00**</td>
<td>-7.56*</td>
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</table>

Model F(11)=56.59*
R-square=.23
AOD Use Mean=.44

Note: * p<.05
**SE > 0.000, and < 0.005
### TABLE 7

**Socio-environmental, Intrapersonal and Interpersonal Characteristics, and AOD Use**

**Model 1 Stage 3**

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<td>0.00 **</td>
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<td>0.00 **</td>
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<td>-0.01</td>
<td>0.00 **</td>
<td>-10.91 *</td>
</tr>
<tr>
<td>Self Intra</td>
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<td>0.00 **</td>
<td>-6.79 *</td>
</tr>
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<td>0.00 **</td>
<td>-1.56</td>
</tr>
<tr>
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<td>0.27</td>
<td>0.00 **</td>
<td>9.05 *</td>
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<td>0.00 **</td>
<td>1.96 *</td>
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Model F(17)=47.66*
R-square=.28
AOD Use Mean=.44

Note: * p<.05
**SE > 0.000, and < 0.005
significant relationship between the socio-environmental, intrapersonal and interpersonal characteristics, and school outcomes. The dependent set of variables, school outcomes, was formulated around three subscales, each subscale consisting of multiple variables. The three stage process of initially entering the socio-environmental variables into the regression, followed by the intrapersonal variables and the interpersonal variables, was investigated using each of the three subscales of school outcomes (perceived academics, attendance, educational aspiration).

School Outcomes Subscales

Perceived Academics

Tables 8, 9, and 10 show the contribution of each set of predictors in explaining the dependent variable, perceived academics. In the first stage, the socio-environmental variables accounted for 13% of the variance in perceived academics (Table 8). The variables measuring gender, ethnicity, family structure, father's education, and church attendance were all significant in accounting for perceived academics. Next, the intrapersonal variables, which consisted of two subscales (school intrapersonal and self intrapersonal), were added and the model then accounted for 31% of the variance in perceived academics (Table 9). At the second stage of the perceived academics model, all variables were significant, except for gender. Lastly, the interpersonal set of variables was added, consisting of two subscales (school activities and delinquency) and four single variables (Table 10). School activities and com-
Community bonding were both significant. In addition, urbanicity and family structure lost their significance during stage three of the regression. An additional 5% of the variance was accounted for by the set of interpersonal variables, totaling 36% accounted for by regressing the three sets of independent variables against the set of subscale variables comprising perceived academics.

**Attendance**

Tables 11-13 present the results of the regression on set of variables measuring attendance. In the first stage (See Table 11), using the school outcome subscale of attendance, the socio-environmental variables accounted for 5% of the variance in attendance. One should note this dependent variable is reverse coded (from missing numerous days or classes to missing few days or classes). Five socio-environmental variables were significant and included gender, family structure, church attendance, work hours, and parental support. Next the set of intrapersonal variables, which consists of school intrapersonal and self intrapersonal subscales, was added and the model then accounted for 26% of the variance in attendance (Table 12). School intrapersonal was significant in this stage of the model. Family structure and work hours lost their significance when the intrapersonal set of variables was added to the regression. Lastly, the set of interpersonal variables was added, consisting of two subscales (school activities and delinquency) and four single variables. Delinquency and school activities were both significant. An additional 2% of the variance was accounted for by the set of interpersonal variables, totaling 28% accounted for by
TABLE 8

Socio-environmental Characteristics
and Perceived Academics

Model 2 Stage 1

<table>
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<tr>
<th>Variables</th>
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<tr>
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<td>-3.50*</td>
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<td>1.87</td>
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<td>0.23</td>
<td>3.35*</td>
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<td>0.08</td>
<td>9.10*</td>
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</tr>
<tr>
<td>Church Attendance</td>
<td>0.87</td>
<td>0.09</td>
<td>9.15*</td>
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<tr>
<td>Work Hours</td>
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<td>0.05</td>
<td>-4.51*</td>
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<td>0.06</td>
<td>-1.15</td>
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</tr>
<tr>
<td>Political Beliefs</td>
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<td>0.10</td>
<td>1.39</td>
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</table>

Model F(9)=33.98*
R-square=.13
Perceived Academic Mean=23.26

Note: * p<.05
**TABLE 9**

Socio-environmental and Intrapersonal Characteristics, and Perceived Academics

Model 2 Stage 2

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<td>8.15 *</td>
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<td>5.48 *</td>
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<td>0.05</td>
<td>-4.28 *</td>
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<tr>
<td>Political Beliefs</td>
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Model F(11)=85.19*  
R-square=.31  
Preceived Academic Mean=23.27

Note: * p<.05
TABLE 10

Socio-environmental, Intrapersonal and Interpersonal Characteristics, and Perceived Academics

Model 2 Stage 3

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<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-0.35</td>
<td>0.19</td>
<td>-1.89</td>
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</tr>
<tr>
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<td>*</td>
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Model $F(17)=67.67^*$
R-square=.36
Perceived Academic Mean=23.27

Note: * p < .05
regressing the three independent sets of variables against the dependent variable subscale of attendance (Table 13).

**Educational Aspiration**

Tables 14, 15 and 16 present the results of the multiple regression for educational aspiration, adding one set at a time. All models were statistically significant. In the first stage, the socio-environmental set of variables accounted for 4% of the variance in perceived academics (See Table 14). Next the intrapersonal set of variables, which consisted of two subscales using multiple variables, was added and the model then accounted for 5% of the variance in educational aspiration (Table 15). Lastly, the interpersonal set of variables was added, consisting of two subscales (school activities and delinquency) and four single variables (Table 16). An additional 4% of the variance was accounted for, totaling 9% accounted for by regressing the three independent sets of variables against the dependent subscale set of variables in educational aspiration.

Gender, ethnicity, father's education, church attendance and parental support were significant in the socio-environmental set of variables; school intrapersonal and self intrapersonal were significant in the intrapersonal set of variables; and lastly, school activities and bonding with friends were significant in the interpersonal set of variables. In the last stage of the model, church attendance and school intrapersonal lost their significance, when the interpersonal set of variables was added.

To determine whether to reject the null hypothesis, the results of the three models were considered. For perceived academics, the full model shown in Table 10 accounted for 36% of the variance in
<table>
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Model F(9)=13.14*
R-square=.05
School Attendance Mean=12.77

Note: * p<.05
TABLE 12

Socio-environmental and Intrapersonal Characteristics, and School Attendance

Model 2 Stage 2

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Model F(11)=66.72*
R-square=.26
School Attendance Mean=12.77

Note: * p<.05
**SE > 0.000, and < 0.005
TABLE 13

Socio-environmental, Intrapersonal and Interpersonal Characteristics, and School Attendance

Model 2  Stage 3

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3 Interpersonal

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Model F(17)=46.44*
R-square=.28
School Attendance Mean=12.77

Note:  * p<.05
**SE > 0.000, and < 0.005
the dependent variable. With respect to attendance, the full model shown in Table 13 accounted for 28% of the variance in attendance. Lastly, in Table 16, the full model accounted for 9% of the variance in educational aspiration. On the basis of the three regression models, the second null hypothesis was rejected and the alternative hypothesis accepted. Socio-environmental, intrapersonal, and interpersonal characteristics affect adolescents' school outcomes.

**SOCIO-ENVIRONMENTAL CHARACTERISTICS, INTRAPERSONAL AND INTERPERSONAL CHARACTERISTICS, AOD USE, AND SCHOOL OUTCOMES**

Research Question 3: Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes? The stated null hypothesis is: There is no significant relationship between the socio-environmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes. The previous three stage model now becomes a four stage model and is tested on the three subscales comprising school outcomes.

**Perceived Academics**

The amount of the variance in perceived academics accounted for by the first three independent constructs was 36% (Table 10). When the additional variables of alcohol and drug use are added in the fourth stage of the regression, the percent of the variance
TABLE 14

Socio-environmental Characteristics and Educational Aspiration

Model 2 Stage 1

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Model F(9)=10.32*  
R-square=.04  
Educational Aspiration Mean=3.81

Note: * p<.05
### TABLE 15

Socio-environmental and Intrapersonal Characteristics, and Educational Aspiration

Model 2 Stage 2

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<td>0.00  **</td>
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Model F(11)=10.06*
R-square=.05
Educational Aspiration Mean=3.82

Note: * p<.05
**SE > 0.000, and < 0.005
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<td>0.06</td>
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<td>0.00 **</td>
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Model F(17)=11.16 *
R-square=.09
Educational Aspiration Mean=3.81

Note: * p<.05
**SE > 0.000, and < 0.005
accounted for by the total four stage model is still 36% (See Table 17), indicating the negligible account of variance in perceived academics accounted for by alcohol and drug usage. Neither alcohol use or drug use was significant. Drug usage was more influential than alcohol use.

**Attendance**

Referring back to Table 13, the amount of the variance in attendance accounted for by the first three sets of independent variables was 28%. When the additional variables of alcohol and drug use were added in the fourth stage of the regression, the percent of the variance accounted for by the total four stage model was 29% (Table 18). While the variance accounted for by adding AOD use to the model is small, both alcohol use and drug use were significant predictors.

**Educational Aspiration**

Referring back to Table 16, the amount of the variance in educational aspiration accounted for by the first three sets of independent variables was 9%. When the variables of alcohol and drug use were added in the fourth stage of the regression, the percent of the variance accounted for by the total model is still only 9% (Table 19). Of the two AOD variables added, only alcohol use was significant.

On the basis of the results from the multiple regression performed on each of the four stages of the theoretical model (socio-environmental, intrapersonal, interpersonal and AOD use), on each of the three subscales of school outcomes (perceived academics, attendance and educational aspiration), the third null hypothesis was
TABLE 17

Socio-environmental, Intrapersonal and Interpersonal Characteristics, AOD Use, and Perceived Academics

Model 2 Stage 4

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<td>Church Attendance</td>
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<td>Work Hours</td>
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<td>-2.30*</td>
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<td>-4.89*</td>
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<td>0.77</td>
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</table>

Model F(19)=60.68*
R-square=.36
Perceived Academic Mean=23.27

Note: * p < .05
rejected based on all three subscales of school outcomes. It should be noted, however, that while the models including AOD use are significant, the amount of variance accounted for in the school outcomes dependent variables by adding AOD use is negligible.

**THE PREDICTIVE CAPACITY OF SOCIO-ENVIRONMENTAL CHARACTERISTICS, INTRAPERSONAL AND INTERPERSONAL CHARACTERISTICS, AND AOD USE ON SCHOOL OUTCOMES**

**Research Question 4:** Which aspects of socio-environmental, intrapersonal and interpersonal characteristics are the most consistent and most efficient predictors of drug usage and school outcomes? To answer this question, the final models were compared for each set of the four dependent variables (AOD use, perceived academics, attendance, educational aspiration). The most efficient predictors of AOD use appear to be intrapersonal variables (raises R-square from 11% to 23%, suggesting a link between feelings of self and AOD use). Interpersonal variables added 5% to variance, suggesting delinquency, school activities and bonding impact AOD use (See Figure 5). The most efficient predictor for perceived academics (See Figure 6) was intrapersonal variables (13% to 31%). Interpersonal also are important (5%), as are background factors (13%). Intrapersonal variables also predicts for school attendance (21%) as does the interpersonal variables (5%). Delinquency dominated the variance accounted for by the interpersonal variables (See Figure 7). The most efficient predictors for educational aspiration were the interpersonal variables (4%) and
TABLE 18

Socio-environmental, Intrapersonal and Interpersonal Characteristics, AOD Use, and School Attendance

Model 2  Stage 4

<table>
<thead>
<tr>
<th>Variables (N=2074)</th>
<th>Beta</th>
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<th>T</th>
</tr>
</thead>
<tbody>
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<tr>
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<tr>
<td>Church Attendance</td>
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<td>0.01</td>
<td>19.23 *</td>
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<tr>
<td>Self Intra</td>
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<td>0.00 **</td>
<td>-1.63</td>
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<tr>
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<td>Parents Bonding</td>
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<td>4 AOD Use</td>
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<tr>
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Model F(19)=44.21*
R-square=.29
School Attendance Mean=12.77

Note:  * p < .05  
**SE > 0.000, and < 0.005
TABLE 19

Socio-environmental, Intrapersonal and Interpersonal Characteristics, AOD Use, and Educational Aspiration

Model 2 Stage 4

<table>
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<th>Variables</th>
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<td>-0.23</td>
<td>0.05</td>
<td>-5.05 *</td>
</tr>
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<td>4.30 *</td>
</tr>
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<td>0.02</td>
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<td>Self Intra</td>
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<td>0.00 **</td>
<td>2.41 *</td>
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<td>3 Interpersonal</td>
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<tr>
<td>School Activities</td>
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<td>0.10</td>
<td>0.01</td>
<td>7.18 *</td>
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<tr>
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<td>0.04</td>
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<td>2.00 *</td>
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<td>Friends Bonding</td>
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<td>Religion Bonding</td>
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<tr>
<td>4 AOD Use</td>
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<td>Alcohol Use</td>
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<td>0.05</td>
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<td>0.11</td>
<td>-1.81</td>
</tr>
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</table>

Model F(19)=10.30*
R-square=.09
Educational Aspiration Mean=3.81

Note: * p < .05
**SE > 0.000, and < 0.005
the socio-environmental variables (4%). Once again, delinquency dominated the interpersonal variables.

**SUMMARY OF RESULTS**

The results of the various analyses performed indicate significant relationships between socio-environmental, intrapersonal and interpersonal characteristics, and AOD use, and significant relationships between the same three sets of independent variables and school outcomes. When an additional set of independent variables (AOD use) was added to the three sets of independent variables, and regressed against the set of dependent variables (school outcomes), significant relationships were also noted for all three subscales of school outcomes (perceived academics, attendance, educational aspiration). In this final section of Chapter IV, the major findings in response to the research questions of this study are listed and briefly summarized.

**AOD Use (Research Question One)**

Regression analyses were used to examine the effects of socio-environmental, intrapersonal and interpersonal characteristics on AOD use.

1. The socio-environmental characteristics of gender, ethnicity, church attendance and political beliefs were significant in accounting for variance in AOD use.
The findings indicated that Caucasians demonstrate a higher participation in AOD use compared to African-Americans. Also found was the females used AOD less than males. Additionally, church attendance was found to be positively linked with abstinence of alcohol and other drugs. Lastly, those students with conservative political beliefs were less inclined to AOD use (See Figure 5).

2. The intrapersonal subscales of school intrapersonal (responsibility demonstrated in school) and self intrapersonal (self-esteem and self-perception) were both found to be significantly related to AOD use. The more responsibility the student demonstrated in school, the less likely the student would be involved in AOD. The stronger self-esteem and self-perception also acted as safeguards against AOD use.

3. The interpersonal characteristics included four variables measuring bonding with different elements in the society including community, religion, friends, and parents. Bonding with parents and friends was significant in accounting for and predicting AOD use. The two subscales in the set of interpersonal characteristics were school activities and delinquency. Participation in school activities was not significantly related to AOD use. Delinquency, however, was significant in explaining AOD use.
Research question two was designed to discover the relationship and predictability of socio-environmental characteristics, intrapersonal and interpersonal characteristics, and school outcomes. Three subscales were used to measure school outcomes. Each of the three sets of independent variables were regressed against each of the subscales of perceived academics, attendance and educational
The major findings in response to research question two are listed below.

**Perceived Academics**

4. When the three sets of independent variables were examined on the level of their influence on perceived academics (grades, perceived intelligence and perceived ability), the socio-environmental variable, ethnicity, was significantly related to perceived academics and served as a predictor (See Figure 6). The analysis showed that Caucasians were higher in perceived academic ability and school achievement. Also of significant accountability, in the set of socio-environmental variables, was the father's education (i.e., the higher the father's education, the higher the perceived academics). Church attendance and political beliefs (conservative) were also significant in predicting higher perceived academic outcomes. The socio-environmental variables of work hours, parental support, church attendance, and political belief, all serve as predictors of higher perceived academics.

5. The set of variables comprising the interpersonal construct contained two significant variables predicting higher perceived academics: School activities and community bonding.

**Attendance**

6. The intrapersonal subscales of school intrapersonal (responsibility demonstrated in school) and self
Theoretical Model #2 Percentage Accounted for in Perceived Academics

intrapersonal (self-esteem and self-perception) were both found to be significantly related to school attendance (See Figure 7). The more responsibility the student demonstrated in school, the less likely the student would miss school or classes. The stronger self-esteem and self-perception also acted as a safeguards against absenteeism.
7. Socio-environmental and Interpersonal Variables were both found to be significantly related to education aspiration (See Figure 8). The findings indicated males demonstrate higher educational aspirations, compared to females. Additionally, students with fathers who have attained a higher educational level show higher
Lastly, students who are involved in school activities and spend time with friends present a higher level of educational aspirations compared to those not involved in school activities or students who choose to spend negligible time with friends.
Research question three was designed to discover the relationship and predictability of socio-environmental characteristics, intrapersonal and interpersonal characteristics, and a fourth independent variable, AOD use, on school outcomes. Three subscales were used to measure school outcomes. Each of the three sets of independent variables were regressed against each of the subscales of perceived academics, attendance and educational aspiration. The major findings in response to research question three are listed below.

**Perceived Academics**

8. With the addition of AOD use as a fourth set of variables, the plan was to see how the addition of AOD use to the model would affect the significance of variables in the other three sets of independent variables. In regressing the four sets of independent variables on perceived academics, the set of variables labeled AOD use was not significant in accounting for or predicting perceived academics. The results indicated that with the addition of the independent set of variables known as AOD use, gender became a significant predictor of perceived academics. The rest of the independent variables that were significant in predicting AOD use from the three stage model, remained significant in the four stage model.


**Attendance**

9. The addition of AOD use (fourth stage) into the model measuring attendance, demonstrated that both alcohol use and other drug use were significant in explaining attendance (school and classes). The entry of this fourth stage into the model (AOD use) added an additional significant variable from the socio-environmental set of variables. Ethnicity now became significant in predicting attendance. All other significant variables remained significant with the addition of the fourth stage (AOD use) into the model.

**Educational Aspiration**

10. The results of identifying the predictors of educational aspiration using the four stage model showed that alcohol use, from the set of AOD use variables, was significant in predicting educational aspiration. All other variables that were significant in the three stage model, remained significant in the four stage model.

The research designs presented at the beginning of this study are reintroduced here to conceptualize the findings resulting from the various analyses performed. Results from the various analysis suggested that the construct of intrapersonal characteristics is the strongest predictor of AOD use, perceived academics, and attendance. Moreover, socio-environmental background characteristics tend to account for the next greatest proportion of variance across most dependent measures (and first in aspirations). Interpersonal relationships account for a small portion of variance (2%-5%) in all
dependent measures. Finally, AOD use is not an efficient predictor of any of the three school outcome measures (less than 1% of the variance).
CHAPTER V. CONCLUSIONS, DISCUSSION, AND RECOMMENDATIONS

INTRODUCTION

This chapter will provide a summary of the study and its purposes, and a discussion of the findings on the impact of socio-environmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes. The findings are discussed and organized by research questions. The chapter will also provide conclusions and implications to be drawn from the study, and discuss recommendations, and directions for future research.

SUMMARY OF STUDY AND PURPOSE

The alarm has been sounded. The federal, state and local governments have recognized the importance of schools in trying to reverse the trend of increased substance abuse in our school age children. Schools are continually compelled to improve student outcomes in response to the demands of the society, which are political, economic and social in nature. Reform efforts have been underway for a number years in response to the national call for improved academic achievement. During the last five years an ever increasing call has been resounded for less violence in the schools. Chapter I detailed this increasing problem.
A review of the research in chapter II indicated environmental factors, demographic factors, and cognitive and behavioral development of adolescents affect how students perform in school. With the increase in availability of drugs and the pressures from friends and self, AOD use has been on the increase since the 1960s. A leveling off was observed late in the 1980s, but in the 1990s, AOD use is again on the increase, especially among the adolescents. What factors are responsible for AOD use and school outcomes?

This study categorized the factors or characteristics into socioenvironmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes. Factors in the social environment that are associated with increased AOD use and lower academic outcomes include family or peer approval or tolerance of AOD use, family or peers as real or perceived models for AOD use, pressure from family or peers to use drugs, low educational aspiration for the children by parents, lack of parental involvement in the child's activities, weak parental controls and discipline, and ready access to drugs (Schecter, 1991). Demographics also comprise the socioenvironmental domain. The scope of intrapersonal characteristics encompass the individual's attitudes, self-esteem, self-control, values, decision-making skills, problem-solving skills, religiosity, social conformity, creativity, locus of control, and stress management. One of the most powerful intrapersonal factors is that of attitude. Attitudes comprise our beliefs, feelings, and behavioral predispositions concerning persons, places, processes, events or situations.
Although attitudes are sometimes poor predictors of behavior, they are, in general, related to our behaviors. Research has identified a number of attitudinal measures that seem to be positively related to actual AOD use. Interpersonal skills, on the other hand are more closely related to the social skills and behavioral management. Some of these are obviously learned in the home and some may be enhanced by the school.

In addition to the influence of the three factors on school outcomes just mentioned, this study investigated the influence of AOD use on school outcomes. The 1980s and early 1990s brought increased recognition of the complexity, interrelatedness, and multidimensional nature of the problems associated with adolescent AOD use. The relationship of substance abuse in the schools and poor academics was noted by President Reagan when he signed into law the Drug-Free Schools and Communities Act of 1986. This legislation provided resources to reinforce and coordinate efforts of schools, communities, state and local officials to eliminate the use of drugs by our nation's youth.

Alcohol and other AOD use are generally not caused by a single factor. A single strategy will not solve the problem. Alcohol and other AOD use are a function of a number of risk factors encountered within the school, family, peer group, and community. The greater the number of risk factors, the greater the likelihood of problems.

Given that schools are an effective place to teach these skills, and given that there is a significant problem in schools (increased AOD use and decreased academics), there is a need to understand
more completely how socio-environmental, intrapersonal and interpersonal factors affect the use of drugs and school outcomes among adolescents. Given that there are a variety of models of the determinants of substance abuse and the relationship to adolescent schooling, this study attempted to develop and investigate a model that would provide information which could be used in school programs to teach certain skills necessary to serve as protection against the pressures of AOD use. In addition this study sought to identify those factors describing the non-user.

This study examined the impact of socio-environmental, intrapersonal and interpersonal characteristics, on students' reported AOD use, and school outcomes. From the perspective of school policy, emphasis was placed on the intrapersonal and interpersonal characteristics as socialization, healthy attitudes and values can be taught, role modeled and encouraged in the school climate. The socio-environmental factors are more difficult to influence from the school based-prevention position, but implications of this research study will address this issue.

The model proposed for this study incorporated five main sets of variables: 1) Socio-environmental, 2) Intrapersonal, 3) Interpersonal, 4) AOD Use, and 5) School Outcomes. The first purpose of the study was to research the relationship between socio-environmental, intrapersonal and interpersonal factors, and AOD use. The second purpose was to investigate the relationship between socio-environmental, intrapersonal and interpersonal characteristics, and school outcomes. The third purpose was to
study the relationship of socio-environmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes.

The purpose of the model proposed for this study was to capture as many of the variables as possible and identify these as subscales under intrapersonal and interpersonal characteristics. This study researched these variables and looked at their relationship to AOD use and school outcomes. The model acknowledged the influence of socio-environmental variables on a variety of substance abuse and school outcomes, but the focus of this research was to concentrate on the life skills that affect AOD use and school outcomes. In addition, the model examined how much these factors serve as protection from or risk of substance abuse. Research such as this study can be linked to prevention programs in the schools to booster the effectiveness of life skills training and to identify which of these life skills seem to be most crucial in preventing substance abuse and promoting excellence in academic performance. The two theoretical models were driven by the following research questions.

1. Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, and reported AOD use?

2. Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, and school outcomes?

3. Is there a relationship between socio-environmental, intrapersonal and interpersonal characteristics, reported AOD use, and school outcomes?
4. Which aspects of socio-environmental, intrapersonal and interpersonal characteristics are the largest and most efficient predictors of AOD use and school outcomes?

Chapter III detailed the methodology used in this study. Data used in the research was provided by the 1992 Monitoring the Future Survey, an annual nationwide survey of high school seniors, using group-administered questionnaires. The sample used in this study (Form 6) contained a sample size of approximately 2,700 seniors.

This study identified a sample of high school seniors randomly selected from schools in four geographic areas of the mainland United States. There was no manipulation of the variables, as the research was ex-post facto. Data analyses were conducted in several stages.

The first steps were aimed at identifying frequencies and means of each survey question to establish the distribution and quality of the question. A correlational matrix of the total group of variables was operationalized to begin studying the relationships. Some questions were recoded so that questions in each construct would be internally consistent. The next step was to assign variables to a construct using face validity. A correlational matrix and Cronbach's Alpha were run on each construct to determine the fit of the questions to the labeled construct (to improve construct validity and reliability). Regression analyses were first run on model one, in order to investigate the amount of variability accounted for by the socio-environmental set of variables, the intrapersonal, and interpersonal variables on AOD use.
Regression analyses were also run on model two, which contained the original three sets of independent variables, adding AOD use as a fourth set of independent variables, in order to determine their effects on school outcomes, measured on three different levels (i.e., perceived academics, attendance and educational aspiration).

**DISCUSSION OF FINDINGS**

The major findings resulting from this study will be discussed according to the research questions proposed and the corresponding theoretical models investigated. The relationships among the sets of variables as well as the predictors of AOD use and school outcomes will be discussed. The first theoretical model investigated the effects of three sets of independent variables on AOD use. AOD use was defined as alcohol and other drugs. Sets of independent variables, entered one at a time into the model, were used to measure the effect of that set of variables on AOD use, as well as the effect on the previous set or sets of variables.

**Socio-environmental Characteristics and AOD Use**

(Stage One)

A key finding of this study was the set of socio-environmental characteristics was significantly related to AOD use. The model included the socio-environmental characteristics of gender, ethnicity, urbanicity, family structure, father's education,
political beliefs, work hours, religiosity and parental support. Significant relationships were noted for gender, ethnicity, church attendance, work hours, and political beliefs. More specifically, the results suggested the following: 1) the males are more likely to be AOD users, compared to females; 2) Caucasians are more frequent AOD users, compared to the African-Americans; 3) attending church minimally is related to greater AOD use, compared to students who attend church more regularly; 4) having a liberal political belief system is related to increased AOD use, compared to those students who carry conservative political beliefs; and 5) those who work while attending high school are likely AOD users, compared to students who do not work.

**Socio-environmental Characteristics, Intrapersonal Characteristics, and AOD Use (Stage Two)**

The addition of the variables comprising intrapersonal characteristics indicated both subscales were significant and served as predictors for AOD use. The first subscale, labeled school intrapersonal skills, consisted of variables measuring responsibility to school requirements. The second subscale, self intrapersonal characteristics, was comprised of variables measuring perceptions of the student toward himself and toward life. With respect to school intrapersonal skills, the findings suggest that greater responsibility for school (i.e., turning in assignments, appropriate school behavior, consistent attendance, and enjoying school) is
related to decreased AOD use. For self intrapersonal, the findings indicate that adolescents with stronger self-concept (i.e., satisfaction with life, positive attitude toward self, feeling self-worth, doing things well, and satisfied with self) are less likely to use drugs. It can be noted that work hours and gender both dropped off the list of predictors when the set of intrapersonal variables was introduced into the regression model. The results support the following conclusions: 1) students responsible to school requirements are more likely to resist AOD use compared to irresponsible students; and 2) students who have good self-esteem and healthy self-perception are more likely to abstain from AOD use, compared to students with low self-esteem and low-self perception.

Socio-environmental Characteristics, Intrapersonal and Interpersonal Characteristics, and AOD Use (Stage Three)

The final stage of the AOD model introduced the set of variables comprising the interpersonal characteristics. This set of variables consisted of two subscales and four independent variables. The first subscale, school activities, measured the number of and involvement in six different school activities. This variable was not significant. The second subscale, labeled delinquency, measured variables such as fighting in school, trouble with the police, and damaging school or work property. The subscale delinquency was significantly related to AOD use; that is
those who committed delinquent acts were more likely to be AOD users.

Four independent variables measured bonding with community, religion, friends and parents. Of the four independent variables, bonding with parents and friends were significantly related to AOD use suggesting those who spend time out with friends to be more likely to be AOD users. Those who spent more time with parents were less likely to be AOD users. Overall, it was determined that variables from all three sets of independent variables were significant in accounting for variance in AOD use.

Model two was designed to investigate research questions two and three. Question two used a three sets of independent variables and regressed them on three dependent subscales measuring school outcomes. The first subscale, school outcomes, measured perceived academics (measured acquisition of A's and B's, perceived ability and intelligence compared to others, and the student's high school grade average). The second subscale, attendance, measured unexcused absences and skipping class. Finally, the subscale of educational aspiration measured the student's aspiration toward the armed services, vocational school or technical school, a two-year college and a four-year college, or a combination of any of the above. Each set of independent variables entered the model one at a time, until all three were in the model, and all three school outcome subscales had been analyzed.

Research question two was investigated by using the first three stages of theoretical model two (socio-environmental, intrapersonal and interpersonal characteristics) to investigate the
significance in accounting for each of the school outcome subscales. Research question three was an extension of this model, including AOD use as a fourth set of independent variables. The intent of the AOD investigation was to determine the significance of AOD use on the dependent set of variables (school outcomes). Lastly, research question four was used to determine the predictability efficiency of each set of independent variables in explaining the dependent variables in the study.

**Socio-environmental Characteristics and Perceived Academics**

(Stage One)

Six variables in the set of socio-environmental characteristics were significantly related to perceived academics. These included gender, ethnicity, church attendance, family structure, father's education and work hours. More specifically, these results suggested: 1) Caucasians had higher perception of their academic outcomes, compared to the African-Americans; 2) students who attend church more regularly had higher perceived academics, compared to those that attended church less regularly; 3) male students were more likely to have higher perceived academics, compared to the female students; 4) students from nuclear family households had higher perceived academics, compared to students from non-nuclear households; 5) students having fathers with higher levels of educational completion had higher perceived academics than students whose fathers had lower levels of
educational completion; and 6) students who do not maintain jobs during high school had higher perceived academics in comparison to working students.

Socio-environmental and Intraperso nal Characteristics and Perceived Academics (Stage Two)

The addition of the set of intrapersonal variables into the regression model resulted in both subscales of intrapersonal characteristics being significant in explaining the variance in perceived academics. The addition of this set of variables also resulted in one socio-environmental variable dropping from the group of significant variables, and the addition of urbanicity, parental support and political belief to the group of significant socio-environmental variables.

The results encourage the following conclusions: The same conclusions are maintained as indicated in the socio-environmental only model, with these additional statements: 1) students living in smaller city and rural environments had higher perceived academic outcomes, compared to those who live in medium sized cities or larger; 2) students who had less parental support (help or checking of homework by parents) had higher perceived academics, compared to those students having parents that check or help with homework (this is probably because parents intervene more with children having difficulty); 3) students with conservative political
beliefs had higher perceived academics, compared to students who maintained liberal political views; and 4) students who were responsible in school and had healthy self-esteem had higher perceived academics, compared to those demonstrating irresponsibility in school and/or a less than healthy self-esteem.

Socio-environmental, Intrapersonal and Interpersonal Characteristics, and Perceived Academics (Stage Three)

The third stage of the model included the set of interpersonal characteristics and investigated their significance and predictability to perceived academics. Urbanicity and family structure, two previously significant socio-environmental variables dropped out of the group of significant variables with the addition of the interpersonal set of variables. Two interpersonal variables in stage three of the model were significant. The subscale school activities and bonding with the community were both significant, allowing the following two additional conclusions to be made: 1) students involved in school activities (i.e., student council, sports, school newspaper or yearbook, academic clubs or other clubs) were likely to have higher perceived academics in contrast to students lacking involvement in school activities; and 2) students who chose to be involved in their community's activities had higher perceived academics, compared to students who chose not to be involved.

To maintain continuity of thinking regarding perceived academics, research question three will be addressed as it relates to
perceived academics, and likewise will the fourth stage of the attendance and educational aspiration models be addressed accordingly to maintain continuity.

**Socio-environmental, Intrapersonal and Interpersonal Characteristics, AOD Use, and Perceived Academics (Stage Four)**

Lastly, AOD use was entered into the model to account for variance in perceived academics. Neither alcohol use nor drug use was significant in accounting for perceived academics. The only change noted was that gender became a significant predictor variable after AOD use was entered into the model.

**Socio-environmental Characteristics and Attendance (Stage One)**

Five variables in the set of socio-environmental characteristics were significantly related to attendance and served as predictors of same. These included gender, family structure, church attendance, parental support and work hours. More specifically, these results suggested: 1) male students were more likely to have higher attendance in school, compared to the female students; 2) students from nuclear family households had higher attendance, compared to students from non-nuclear households;
3) students who attend church more regularly had higher attendance, compared to students who do not attend regularly; 4) students who had parental support (help or checking of homework by parents) are more likely to have higher attendance, compared to those students having parents that do not check or help with homework; and 5) students who do not maintain jobs during high school had higher attendance in comparison to working students.

Socio-environmental and Intrapersonal Characteristics and Attendance
(Stage Two)

The addition of the set of intrapersonal variables resulted in both subscales of intrapersonal characteristics (school intrapersonal and self intrapersonal) being significant in explaining the variance in attendance. It can be noted that school intrapersonal was more responsible in explaining attendance. With respect to school intrapersonal and self intrapersonal characteristics, the results indicated students who were responsible in school and had healthy self-esteem were likely to have higher attendance, compared to those who demonstrated irresponsibility in school and had a less than healthy self-esteem.
Socio-environmental, Intrapersonal and Interpersonal Characteristics, and Attendance
(Stage Three)

The third stage of the model included the set of interpersonal characteristics and investigated their significance and predictability to attendance. Two subscales in stage three of the model are significant. The subscales school activities and delinquency were both significant, allowing the following conclusions to be made: 1) students involved in school activities had higher attendance in contrast to students who lacked involvement in school activities; and 2) students who were involved in delinquent acts had lower attendance, compared to students who were not involved.

Socio-environmental, Intrapersonal and Interpersonal Characteristics, AOD Use, and Attendance
(Stage Four)

Lastly, AOD use was included into the model to account for variance in attendance. AOD use was significant in relation to attendance. Both alcohol use and drug use were significant in explaining attendance, in this case lack of attendance, suggesting that adolescents who use drugs or alcohol in the morning or evening before school or binge during the weekend, may decide to skip school. It can be noted that ethnicity became significant with the addition of the AOD variables.
Socio-environmental Characteristics and Educational Aspiration
(Stage One)

Five variables in the set of socio-environmental characteristics were significantly related to educational aspiration. These included gender, father's education, ethnicity, church attendance and parental support. More specifically, these results suggest: 1) males are more likely to have higher educational aspiration in school, compared to the females; 2) students having fathers with higher levels of educational completion had higher educational aspiration than students whose fathers had low educational completion; 3) Caucasians had higher educational aspiration, compared to African-Americans; 4) students who attend church more regularly had higher educational aspiration, compared to students who attended church less regularly; and 5) students who had more parental support (help or checking of homework by parents) are had higher educational aspiration, compared to those students with parents that did not check or help with homework.

Socio-environmental and Intrapersonal Characteristics and Educational Aspiration
(Stage Two)

The addition of the set of intrapersonal variables resulted in both subscales of intrapersonal characteristics being significant in explaining the variance in educational aspiration. The results
encourage the following conclusion: 1) students who were responsible in school and had healthy self-esteem are more likely to have higher educational aspiration, compared to those who demonstrated irresponsibility in school and had less than a healthy self-esteem.

**Socio-environmental, Intrapersonal and Interpersonal Characteristics, and Educational Aspiration (Stage Three)**

The third stage of the model included the set of interpersonal characteristics and investigated their significance and predictability to educational aspiration. Two subscales and one single variable in stage three of the model were significant. The subscale school activities and delinquency were both responsible in explaining educational aspiration (delinquency explains lower educational aspiration and school activities explains higher educational aspiration). Bonding with friends was also significant in explaining educational aspiration. The following conclusions are made: 1) students involved in school activities had higher educational aspiration in contrast to students who lacked involvement in school activities; 2) students who were involved in delinquent acts had lower educational aspiration, compared to students who were not involved; and 3) students who had strong bonds with friends were more likely to have higher educational aspiration, compared with students who had less bonding with friends.
Lastly, AOD use was entered into the model to account for the variance in educational aspiration. Only the subscale alcohol use was significant in predicting educational aspiration. All other variables in the three previous stages of the model maintained the same stature as the third stage.

CONCLUSIONS, IMPLICATIONS, AND RECOMMENDATIONS

Socio-environmental Factors

One conclusion drawn from the study is that socio-environmental characteristics are significantly related to student outcomes corroborates previous research by Schecter (1991). Socio-environmental backgrounds of students remains a consistent challenge for educators. Factors in the socio-environment that are associated with AOD use and school outcomes include gender, ethnicity, and urbanicity. Several policy implications may be explored. Some of these particular factors are difficult if not impossible to change; therefore, developing programs to match the ethnicity and community structure are important. Some of the factors that are difficult to change may be dealt with indirectly. For example, programs for parents and the community, sponsored by
the schools can have an influence on these factors. In addition, parenting programs (educational, skill building and counseling) can improve the outlook for positive school outcomes and create a lessening of substance abuse by helping parents to more adequately help with these goals. Counseling sponsored by schools may help to strengthen the family unit, thereby supporting an important socio-environmental factor. Lastly, school-sponsored community meetings can encourage healthy communities to support the adolescent population. Programs should reflect the special needs of ethnically diverse students, differences in gender with respect to AOD use and school outcomes, as well as the problems of large cities with respect to schooling and AOD use.

Working during high school was also investigated as a socio-environmental factor and the findings of this study corroborated with Bachman et al. (1991) as they argue that the measures of hours worked, and income earned, during senior year, can be an independent variable predictive of AOD use. Bachman and colleagues also noted the frequencies of AOD use increasing with the size of the community in which the student resides. In addition, they note that non-nuclear families are a larger risk for substance abuse, which also corroborates with this study.

Religiosity was also found to be significant in predicting AOD use and school outcomes. Can school promote religion? This is an area of current debate in schools. Schools are under constant political scrutiny for their approaches to religion, but schools can encourage a spiritual development in students and increase the
student's belief in themselves through their inner spirit, without promoting "religion."

The school serves as a socio-environmental influence. Schools are challenged to provide a healthy and positive environment. Schaps and Battistich (1992) address one of the most critical questions facing prevention interventionists—how can one promote healthy development? They describe healthy development as a "proactive program based in the schools that develops a protective factor and increases resiliency among students to resist substance abuse" (p. 128). This researcher concurs with this philosophy.

**Intrapersonal Factors**

A second conclusion from this study is that intrapersonal characteristics are significant in predicting AOD use, perceived academics, school attendance and educational aspiration. This construct accounts for a large portion of the variance in each model (except for educational aspirations). The results of this study corroborate with Tobias (1986) who posits that poor motivation, low self-esteem, declining grades, skipping school, vandalism, theft, and fighting are often associated with chemical use. Schools can be proactive in promoting students' intrapersonal development. Of the above characteristics, this researcher believes that the classroom teacher is most important in the development of students' self-esteem, and curriculum should be in place to strengthen students' self-esteem.
Similarly, school intrapersonal characteristics affect AOD use and school outcomes. The school intrapersonal characteristics describe the students' responsibilities toward school work and the rules of the school. Schools can help support the development of these skills by working with parents to help promote responsible students and to promote, encourage and support the "responsible" student. Student handbooks need to be clear and concise to promote understanding and comprehension of just what the school expects. Programs and school supports should be fit to the needs of special groups of students (i.e., by ethnicity, gender, or school setting).

**Interpersonal Factors**

A third conclusion from the study is that interpersonal skills are significant predictors of AOD use and school outcomes. While accounting for less variance than socio-environmental or intrapersonal, interpersonal skills are important. Moreover, they were most important in predicting educational aspirations. School activities were found to be significant in predicting abstinence in AOD use, higher perceived academics, higher attendance and higher educational aspiration. Policy implications that follow demonstrate the importance of schools operationalizing a student activities program to meet the needs of the students.

Most adolescents choose alternatives to substance abuse. Alternative pursuits are activities and interests that fulfill a person's need for personal enrichment and fulfillment without
resorting to "chemical highs" (Quest, 1991). Alternative pursuits advocate "natural highs"—good feelings about one's self that are derived from natural experiences. The Quest Program explains the alternative pursuits concept by stating, "For every level of experience, certain motivating factors encourage specific human needs. These needs are often met through AOD use. However, these needs can be met more appropriately through alternative experiences, or natural high pursuits" (p. 63). The supportive statements from Murray & Perry (1985) and developers of the Quest Program concur with the results of this study showing the significance of school activities in providing an alternate high and the importance of meeting the functional needs of the students.

Delinquency, a subscale measurement of interpersonal characteristics, was found to be predictive of higher AOD use, and lower perceived academics, attendance and educational aspiration. Delinquency is not only a school problem but a community environment problem. The school needs to be instrumental in working with the community organizations to control this problem. Schools are increasingly forced to make use of the services of security guards to help guard the environment.

A number of studies correlate violence and delinquency to AOD use (Elliot, Huizinga & Ageton, 1985; Rutter & Giller, 1983; Levine, 1985). Over the last ten year period an increasing effort to prevent substance abuse has been mounted by the federal government, states, communities and schools. Although delinquency and violence are interpersonal characteristics, the school environment is a socio-environmental characteristic, therefore
schools can influence this variable. Schools need to protect the environment from violence and promote the positive attributes of positive behavior.

Four variables measuring the student's bonding with community, religion, friends and parents were included in interpersonal skills. Schaps and Battistich (1992) proposed a tentative model of socialization and social development that rests, in part, on the establishment of a positive affective bond between the individual child and important socializing agents and institutions. The role of these agents is to promote interpersonal relatedness, competence, and autonomy. The results of this study corroborate with Schaps and Battistich as bonding with friends and parents was shown to be significant in predicting AOD use. Additionally, bonding with friends was found to be significant in predicting educational aspiration.

Students in our high schools are adolescents. According to Steinberg (1992), two common views about the adolescent no longer seem appropriate: (1) that adolescence is an inherently difficult period; and (2) that AOD use results from normal problems in coping with this transition. The results of this study indicate most adolescents manage the transitional periods through adolescence without serious difficulties. The challenge is to distinguish between youngsters likely to experience difficulties (the minority of the national sample) during the adolescent transition and those who will not.

Risk factors that increase vulnerability, and protective factors that increase resistance to developing problems, have received the
attention of researchers over the last two decades. In identifying such factors, one needs to differentiate between those risk and protective factors that operate at the individual level (e.g., personality, behavioral patterns, and school performance), the interpersonal level (e.g., family and peer relations), and the social environmental level (e.g., demographics, school, work, and societal roles). An ever increasing amount of prevention programs are attempting to identify the risk factors at the earliest age possible and direct programs to help foster resiliency among these young students. This researcher concurs that the earlier these children are reached, the more effective the prevention program. Additionally, there is a cost savings in dealing with the problems before they reach a critical magnitude.

AOD Use

A fourth conclusion of this study relates to the function of AOD use. Socio-environmental, intrapersonal and interpersonal characteristics are significant in predicting AOD use. AOD use is also a predictor of some school outcomes. This study found AOD use was a questionable predictor of perceived academics, but was significant in predicting attendance and educational aspiration.

Other researchers came to similar conclusions. O'Malley (1975) reported finding no significant relationships with AOD use in self-reported grades of cohort of 10th-grade boys followed for four years after high school. Kandel (1975) reported from a cross-
sectional analysis of a high school study, that absentees were more involved in drugs than their classmates who attended school regularly; and that the same factors which are related to school absenteeism, such as poor school performance and cutting of classes, are also related to higher rates of AOD use among regular students. The implication is that AOD use may have minimal effects on academics if other intervening factors protect the student's academics. AOD use is a broadly defined term.

The research field is diverse in its opinions in this field of study. Opinions differ on definitions of "use" and "abuse," and how to make sense of the research in the field, and then how to best apply the findings to establish informed policy and effective programs in schools. AOD use exists; the implications from this study are to reduce the effects of AOD use on school outcomes by strengthening the personal and social skills of the students, while simultaneously supporting effective proactive prevention programs.

Not all schools acknowledge the drug problem. School administrators, counselors, teachers, and coaches often deny a drug problem. They feel that if there is AOD use in their school, or in a classroom, or on a team, it is their fault, or that it is a reflection of their job performance. They may agree students are using alcohol and other drugs after school hours but certainly not at school or during school activities. Denying the problem may be easier than doing something about it. Administrators fear that admitting a drug problem will cause panic among parents, students, teachers or the media. There may also be a fear of loss of acceptance by students or peers, loss of prestige in the community, or loss of job.
The implication here is that schools need to acknowledge the state of the AOD use problem in their school and work with parents and the community to develop a community-wide approach to a prevention program.

Schools are vulnerable because drugs tend to be available wherever groups of kids congregate, whether it be parties, parks, malls, or schools. Schools are especially vulnerable because kids spend large blocks of time at school and school-related activities. Additionally, the majority of peer interactions in a young person's life take place in the school setting. Peer influences seen in school can also be transferred to the neighborhood, community center or church. For users, school offers a networking opportunity. Drugs are very easy to conceal and privacy rights issues protect users. Counselors, administrators and teachers can often identify those students involved in AOD use. The schools need to recognize the peer cluster theory and work on groups of people who are at risk for AOD use. Schools need to be aware of the prevention programs available as well as incorporate the teaching of intrapersonal and interpersonal skills throughout the curriculum.

Numerous researchers (Botvin & McAlister, 1981; Pentz, 1983; Schinke et al. 1984;) in this field have looked at the different aspects of teaching personal and social skills as a protection against the onset of AOD use. These approaches are based on the postulate that the most effective approach to substance abuse prevention, utilizing school-based programs with general population groups, is to influence basic personal and social competence skills that appear to be causal factors as well as protective factors in AOD use or
abstinence. The variables used in these models are the causal and protective factors so mentioned. Which ones predict AOD use and school outcomes?

**Validity of the Theoretical Model**

In summation, numerous significant predictors came out of the two theoretical models. In the full three stage model measuring AOD use, delinquency and bonding with friends accounted for the largest amount of variance in AOD use, confirming the need to control violence and delinquency, and the need to teach resistance skills to students to be able to say no to peer pressure to use drugs.

In the full four stage model of perceived academics, ethnicity, father's education, school intrapersonal characteristics, and delinquency demonstrated the largest accountability for perceived academics. The results imply that schools should concentrate on promoting positive behavior and responsible students to increase perceived academics. The complete four stage model of attendance indicated that delinquency and drug use were most accountable for variance in attendance. The implication being that, once again, positive behaviors must be promoted in the schools, and additionally, the importance of prevention programs designed to control substance abuse.

Lastly, the four stage model of educational aspiration indicated the large accountability of drug use and alcohol use in the subscale of school outcome. In reviewing the three subscales of school outcomes, one could posit that overall, delinquency and
school intrapersonal characteristics are most accountable for the variance in school outcomes.

Today's schools therefore can be classified as a risk factor or as a protective factor. The school's environment (i.e., location, student backgrounds) and its culture (programs, teaching, curriculum) have a large influence on students. They can be a protective haven from the surrounding environment or a risk to the student if violence and unhealthy peer pressure are descriptors for the school. Our job as citizens in our communities is to ensure our schools are classified as a protective factor. Schools have a captive audience with the children of America. We have the opportunity to develop our youth into the citizens of the future, drug-free.

IMPLICATIONS FOR FUTURE RESEARCH

While providing answers to some questions of relationships between socio-environmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes, other questions still need to be addressed in future studies.

That a significant relationship exists between socio-environmental, intrapersonal and interpersonal characteristics, AOD use, and school outcomes is well documented in the literature. What remains for educators to do, however, is to determine how these characteristics must be treated, or accepted, in school improvement efforts. The school administrator, counselors, teachers and the community must determine how the school deals within this context. Further studies need to be conducted to
account for additional variance in AOD use and school outcomes.
This research project used multiple regression to measure the
amount of variance accounted for by a number of independent
variables and subscales. Future analysis could be conducted,
investigating the direct and indirect pathways from the inde­
pendent sets of variables to the dependent variables. In addition,
once this theoretical model is accepted in the field of study,
researchers could further study how particular prevention
programs address these factors. Using longitudinal studies to
measure the effectiveness of such prevention programs could also
be investigated. The issue of SCBM and its effects on prevention
programs and school efforts to curb AOD use and improve school
outcomes also presents an interesting research project.

There is also a need for continuing policy research dealing
with AOD use and school outcomes. This researcher hopes that the
results found in this study would help to implement policies that
would eventually help reach the goal of "Drug Free Schools by Year
2000."
**APPENDIX A**

**BUDGET AUTHORITY (MILLIONS OF DOLLARS)**

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| **Office of National Drug Control Policy** | 37.10  | 105.60 | 70.20 |

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222
## APPENDIX A (Continued)

### BUDGET AUTHORITY (MILLIONS OF DOLLARS)

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<td>29.40</td>
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### APPENDIX A (Continued)

**BUDGET AUTHORITY (MILLIONS OF DOLLARS)**

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<tr>
<th>Department</th>
<th>1990 Actual</th>
<th>1991 Estimate</th>
<th>1990 Request</th>
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<td>Interdiction &amp; Other Act</td>
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APPENDIX B

GOALS FOR SCHOOLS, COLLEGES, AND UNIVERSITIES

America's leaders have set a national goal of drug-free schools by the year 2000. This goal is one of six key performance goals for the nation's schools that federal and state officials adopted at the September 1989 education summit convened by President Bush in Charlottesville, VA. By the year 2000, according to the national goals statement, the nation will:

* prepare all children to start school ready to learn;
* increase the high school graduation rate significantly;
* improve student achievement and citizenship;
* lead the world in mathematics and science achievement;
* ensure that all adults are literate, skilled, and responsible citizens; and
* maintain safe, disciplined, and drug-free schools.

The Commission endorses these national goals, but it also believes that the last goal must come first, because safe, disciplined, and drug-free schools form the foundation for improving student performance. The steps that schools can take to prevent drug use will help improve education in the same way that providing students a high-quality education can help reduce drug use. The Commission found, however, that the vast majority of schools and colleges have not established goals and objectives for drug-free
schools. Schools that have successfully reduced drug use do have goals and have built widespread support for those goals within the school and community. These schools hold students and staff accountable, and they count on parents, teachers, and other adults to set an example by not using drugs or abusing alcohol, by being informed about the dangers of drug use, and by upholding the law. Their goals reflect community standards and values and help establish a comprehensive drug prevention strategy with specific objectives which are reviewed and updated periodically.

The following is a timetable for meeting objectives toward the goals of drug-free schools.

By 1991, all schools, colleges, and universities should:

• Establish a school-based prevention task force to assess drug problems including problems with alcohol and tobacco and to develop strategies for eliminating drugs.
• Establish base line data for use in developing and evaluating programs.
• Conduct a comprehensive assessment of the schools' drug problems every two or three years, including an analysis of resources available in the school and community, a review of staff training needs, and an evaluation of the schools' prevention programs. Use results to design, evaluate, and improve programs.
• Establish local goals and objectives for achieving drug-free schools.
• Develop standard operating procedures for selecting and using drug education programs, activities, and materials, concentrating on what research has shown to reduce drug use.
• Establish firm, no-use policies with appropriate sanctions that prohibit drug use including alcohol and tobacco, by students, staff, and others at school and at all school-related events.
• Review school policies and state and local laws on alcohol, tobacco, and other drugs to ensure they support each other. Work with local and state legislators to strengthen laws that do not support school policies.
• Work with local law enforcement officials to ensure that laws on drugs including alcohol and tobacco are enforced fairly and consistently throughout the community.
• Set up drug-free school zones and strictly enforce all provisions.
• Reward students who participate in programs and activities that promote being alcohol and drug-free.
• Coordinate services of community agencies and organizations involved in law enforcement and in drug education, prevention, and treatment. Develop written agreements that outline prevention roles and responsibilities for schools and community groups. Establish guidelines for enforcing all drug laws, including those related to alcohol and tobacco.
• Identify students most at risk of drug use, and develop prevention programs for them.
• Develop a good working relationship with local private-sector employers and the greater business community to reinforce
school prevention programs.

• Help develop a broad-based community task force to address the community's problems with alcohol, tobacco, and other drugs.

By 1992, all schools, colleges, and universities should:

• Develop comprehensive prevention and education programs, addressing the most critical needs first.

• With help from the community and the private sector, keep the school open after hours and during the summer as a community resource.

• Develop strategies to improve instruction and students' academic performance, and to train all teachers, administrators, and other school employees in drug prevention.

• Expand drug-free zones around schools each year.

Between 1992 and 1999, all schools, colleges, and universities should use their prevention task forces to help conduct the following efforts:

• Use research and evaluation findings to develop prevention and education programs that deal with the needs identified in school and community assessments. Seek participation and support from the community and the private sector in developing programs.

• Review annually school policies, programs, and practices on drug use including alcohol and tobacco, to ensure they meet objectives, and make necessary changes.
• Maintain close working relationships with community agencies, law enforcement, and the private sector to ensure that support for prevention programs and enforcement of all drug laws is continued.

• Train all staff regularly in the prevention of drug use including alcohol and tobacco use.

• Assess drug problems and evaluate programs every two or three years to document reductions in alcohol and drug use.

• Educate all parents about drugs and alcohol, including signs of use.

• Provide regular drug and alcohol orientation courses for college students.

By the year 2000, all schools, colleges, and universities should:

• Ensure that schools and colleges are drug free.
APPENDIX C

ALCOHOL AND OTHER DRUGS

Alcohol

Alcohol is the major active ingredient in wine, beer, and distilled alcoholic beverages. The type of alcohol that is found in these beverages is ethyl, or ethanol alcohol. Ethyl alcohol is a drug. Depending on the amount drunk, it can produce feelings of well-being, sedation, intoxication, or unconsciousness.

Alcohol can be considered a food since it has calories, but it has practically no nutritional value. Alcohol does not have to be digested; approximately 20 percent of the alcohol is absorbed into the blood from the stomach, while the other 80 percent enters very quickly from the first few inches of the small intestine. After absorption alcohol is found in all body tissues, organs, and secretions.

One-half ounce of 100 percent alcohol has about 100 calories, and is considered to be one drink. Approximately one-half ounce of alcohol is found in a 12-ounce can of beer, a 5-ounce glass of dinner wine, or a cocktail containing 11/2 ounces of 86-proof liquor (proof is twice the percent of alcohol). An average period of time for one drink to be oxidized or eliminated from the body is about one hour. However, it is important to remember that this is only an average; some people will take two hours or longer to eliminate one drink.
Coffee or other stimulants, showers, and other rituals will not speed up the process of elimination of alcohol.

**Chemical Dependency**

Chemical dependency is considered to be an illness that exists when a person abuses a drug over time in ways that continue to interfere with his or her life goals, relationships, and happiness. Chemical dependency includes a compulsion to use the drug, a loss of predictable control over the use of the drug, and continued use in spite of negative consequences.

Earlier definitions of chemical dependency frequently divided dependency into two categories: physical addiction and psychological dependency. The broader, more inclusive term, chemical dependence; has evolved with the increasing recognition in recent years that the psychological aspects of dependency might be even more difficult and important than physical dependency in treatment and recovery. The difficulty of quitting smoking is a good example to illustrate that point.

**Chemical Dependency Cycle**

Chemical dependency usually progresses through these stages: non-use, experimental use or abuse, occasional use or abuse, regular abuse, dependency. Progression through these stages usually occurs gradually, over time. However, some people progress through these stages very quickly, occasionally within
months. The speed of progression depends on the person, the drug that is abused, the frequency of use, and the amount of the drug being used. For example, the progression with alcohol usually is faster with adolescents than adults, and the progression with cocaine usually is faster than with alcohol. The greater the quantity and frequency of abuse, the faster the progression is toward dependency.

No single cause of chemical dependency has been pinpointed, but several interplaying factors contribute. How often and how much people drink or abuse some other drug largely determines whether or not they develop dependency, and an interplay of biogenetic, socio-cultural, psychological, and environmental factors determine choices about quantity and frequency. For example, biogenetic vulnerability to alcoholism has been found in offspring of alcoholics, certain cultural attitudes encourage heavy drinking (for example, the attitude that drinking is a good way to have fun). Easy access to alcohol and other drugs increases use and abuse. Low self-esteem, poor coping skills, and poor relationship skills increase the likelihood of abusive drug use.

**Depressants**

Depressants, also called downers, are a large group of drugs which depress the central nervous system (CNS). Included in this group of drugs are barbiturates (e.g., Seconal, Tuinal, Amytal—commonly called reds, blues, amies, rainbows, or barbs), tranquilizers (e.g., Valium and Librium), and methaqualone (e.g.,
Quaalude and Sopors). At low doses, these drugs are prescribed as sedatives, or drugs to reduce anxiety. At higher doses or to induce sleep, these drugs are called hypnotics.

Barbiturates often are prescribed for sleep and to control seizures. Tranquilizers are prescribed for anxiety and muscle tension. Barbiturates and methaqualone are much stronger, cause more euphoria, and have more potential for abuse as a result.

Stimulants, also called uppers, are drugs which speed up the action of the central nervous system (CNS). As a result, stimulants increase alertness, reduce hunger, and provide a feeling of well-being. At the same time, they increase heart rate, blood pressure, and other body functions. Caffeine is a mild stimulant found in coffee, tea, chocolate, and some soft drinks. Nicotine is a stimulant found in tobacco products. Cocaine and amphetamines are much stronger stimulants.

Cocaine

Cocaine is a stimulant taken from the leaves of the coca plant which grows in South America. Cocaine usually appears as a fine white powder and is used occasionally as a local anesthetic, particularly for surgery around the eyes, nose, and throat. Cocaine is most often sniffed or snorted into the nose when it is abused. Abusers seek the feelings of euphoria, well-being, and tirelessness that cocaine produces effects which last only a short time.

Cocaine appeals to adolescents not only because of its effects, but because of its increased availability, the glamour associated
with the drug through television and movies, and cocaine's incorrect reputation as a low-risk drug. A 1985 Michigan survey revealed that 49 percent of high school students said cocaine was available to them.

Freebase is a purified form of cocaine which is suitable for smoking. Smoking freebase produces a more intense high because smoking takes the drug to the lungs where the surface for entry into the bloodstream is larger. However, the high is short in duration.

Crack is a mixture of cocaine, baking soda, and water. Crack is white to beige in color and sold in the form of pellet-size chips called "rocks." These chips can be heated and the vapors are inhaled. Crack also can be smoked in a special pipe, doused with PCP, or mixed with marijuana or tobacco.

Amphetamines

Amphetamines include three drugs which are very similar—amphetamines, dextro amphetamine, and methamphetamine (commonly called speed, uppers, dexes, bennies, crystal, and white crosses). Amphetamines come in pill form, but some abusers sniff the crystals or make a solution and inject it. Amphetamines are used for treating narcolepsy, a rare sleep disorder, for minimal brain dysfunction in children, and for short-term treatment of obesity.
Marijuana

Marijuana (also commonly called pot, grass, reefer, or weed) comes from the Cannabis Sativa plant, which grows wild but is cultivated in many parts of the world. Containing more than 400 chemicals, this plant has the ability to intoxicate users primarily due to the psychoactive or mind-altering drug commonly called THC, or delta-9-tetrahydro cannabinol. Concentrations of THC content vary in different plant parts, which determine its potency. Other variables that control the strength of THC include plant strain, climate, soil conditions, and harvesting. The THC content of marijuana sold today is much higher than it was in the 1970s.

Typically, the marijuana is smoked in cigarettes (joints) which are made from dried particles of the whole plant except roots and main stem. Sensemilla is a potent version of marijuana in which the male plant is removed, allowing the female plant to develop without seeds. The resulting increased resin and smaller leaves contain a higher concentration (8% or more) of THC. Hashish, or "hash"—a green, dark brown, or black resin extracted from the Cannabis plant—can contain more than 50 percent THC and is smoked to produce a high.

Very limited medical use of marijuana or THC, largely experimental, has occurred in the treatment of glaucoma, asthma, and nausea associated with cancer chemotherapy. Most doctors and patients view other alternative medicines as preferable.

The THC in marijuana, hashish, and sensemilla works by entering the bloodstream and acting on the brain and nervous system.
Generally, the drugs are taken into the body by smoking or by eating them with other foods. Smokers typically hold the inhaled smoke in the lungs to experience greater effects from the THC. In the body, the drug is absorbed by most tissues and organs, but finds its way primarily to fat tissues. The brain and reproductive organs, two of the fattiest areas in the body, can store THC for up to a month.

**Inhalants**

Inhalants are breathable chemicals that evaporate easily. The vapors produce psychoactive (mind-altering) effects similar to anesthetics. When inhaled, these chemicals pass immediately through the thin membranes of the lungs into the bloodstream. As the chemicals enter the brain, the nervous system becomes depressed (with most inhalants). In most cases the highs achieved last only for a few minutes. Death may result from either depression of the central nervous system or suffocation.

People do not usually think of inhalants as drugs because most of these substances are designed for other purposes. The highest number of users are between the ages of 7 and 17. Inhalants appeal to this age group primarily because they are readily available and inexpensive. Often first experiences are unintentional and are a result of just having the products around the home. Today most volatile products are marked with warning labels stating federal law prohibits misuse. Chemical products used for inhaling include solvents, aerosols, some anesthetics, and other chemicals.
Look-alike and Designer Drugs

Look-alike drugs are drugs that are made to look like certain legally prescribed mind altering drugs, particularly amphetamines, in shape, size, color, and markings. The look-alikes promoted as "uppers" generally contain one or more of the legal drugs caffeine, phenylpropanolamine (PPA), or ephedrine. The look-alikes sold as "downers" usually contain antihistamines. These drugs usually are marketed by mail-order or are sold on the street.

Designer drugs are illicitly manufactured chemical substances in which the molecular structure of a popular mind-altering drug has been changed only slightly (e.g., MDMA, commonly known as Ecstasy, is an amphetamine derivative with hallucinogenic properties). The slight change circumvents copyright and other drug laws and has allowed manufacturers to sell these drugs legally until laws are enacted to make them illegal. For example, "China White" and "synthetic heroin" are derived from a drug called sentanyl and are sold in the heroin market on the street. Other designer drugs include amphetamine derivatives with hallucinogenic properties.

Hallucinogens

Hallucinogens, also called psychedelics, are drugs which cause changes in sensations, perceptions, emotions, and self-awareness. LSD, PCP, mescaline, psilocybin, and DMT are common hallucinogens. Mescaline is made from the peyote cactus; psilocybin is
made from the psilocybe mushroom; LSD, PCP, and DMT are synthetics or semi-synthetics.

LSD known as acid, is one of the strongest mind-altering drugs. It is sold on the street in tablet, capsule, and liquid form. LSD is odorless, tasteless, and colorless. Mescaline is similar to LSD in effects, but it is not as strong. Mescaline is smoked or taken in capsule or tablet form. Psilocybin is not as strong as mescaline and usually is sold in tablet or capsule form. DMT is similar to LSD, but lasts a shorter period of time.

PCP has hallucinogen effects, but it also can act as a depressant or a stimulant. PCP is manufactured from common chemicals, is available in tablet, capsule, and powder form and can be swallowed, sniffed, smoked, or injected. It can be sprinkled on marina or parsley and smoked.
REFERENCES


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