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D.A.R.E. and the Diffusion of innovations: Implications for assessing reported drug alcohol and tobacco use among 8th 10th and 12th grade students in Montana public schools

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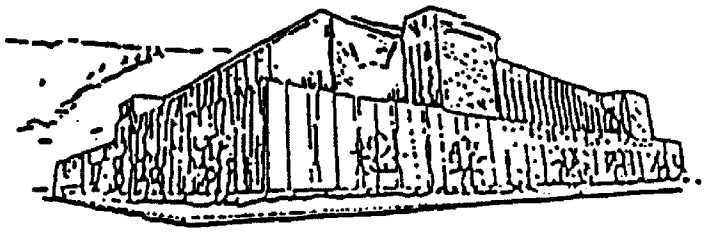

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D.A.R.E. and the Diffusion of Innovations: Implications for Assessing Reported Drug, Alcohol, and Tobacco use Among 8th, 10th, and 12th Grade Students in Montana Public Schools

by

Dusten R. Hollist

B.A. The University of Montana, 1997

Presented in partial fulfillment of the requirements

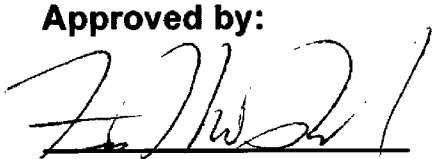
For the degree of

Master of Arts

The University of Montana

1999

Approved by:



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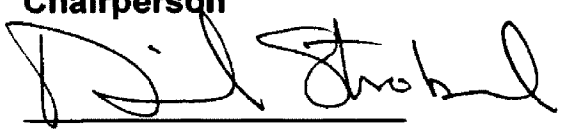

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Hollist, Dusten R.. M.A.. May 1999 Sociology

D.A.R.E. and the Diffusion of Innovations: Implications for Assessing Reported Drug, Alcohol, and Tobacco use Among 8th, 10th, and 12th Grade Students in Montana Public Schools.

Chairperson: Fred W. Reed

ABSTRACT

Although much time and money has been allocated to school-based drug resistance education, little if any progress has been made reducing drug use. This paper compares the D.A.R.E. program to a model based upon Everett Rogers' Diffusion of innovations, and a model constructed using measures cited in the literature as factors associated with at-risk youth (risk factors). The fundamental concern of this paper is to examine the degree to which those factors that facilitate the adoption of drug using behaviors lead to a better understanding of adolescent drug, alcohol, and tobacco use. Rogers' model, a theoretically based model applied to behavioral change, is shown to have more promise for future research in this area.

Acknowledgement

This work is largely indebted to Fred W. Reed and William H. McBroom at the University of Montana who have given countless hours of mentoring, editing, evaluation, and encouragement to me during the course of this project. In a profession where mentoring is seemingly disappearing, they gave me their time and mental resources that were essential components of the completed work presented here. A special thanks to Fred who nurtured the original idea, was instrumental in keeping the project on task and heading in the right direction. Additional thanks to Cindy Garthwait who served as the outside member to my committee. Thank you for the support, encouragement and advice.

To Pete Surdock Jr. MSW. ACSW. Project Director Chemical Dependency Bureau, Montana Department of Public Health and Human Services, Bruce Parsons Ph.D. and Steve Harrison Ph.D. independent researchers and owners of Intermountain Evaluation Services Inc. Helena, Mt. Thank you for the gift of data. The data used in this study taken from the Montana Prevention Needs Assessment survey was supported through federal grant # 277-97-6005 given to the Montana Child, Adolescent and Adult Needs Assessment Studies: Alcohol and other drugs CSAP.

To Lonnie Schaible, who while completing his own work has given me numerous hours of feedback, computer and technological training, and an open mind to bounce ideas off of, Thank you Lonnie, our work has just begun!!! A special thanks to the following people who were also essential to the completion of this paper. Tara Keniry who served as editor for the multiple drafts and revisions that this paper has undergone, Chuck Harris for all of the encouragement, advice and computer help and Shari Linjala, the department secretary for always taking the time to make sure that all the essential paperwork was completed and the bureaucratic dedalines meet.

Finally, to my wife Cheri, and our two children, Mariah and Tristen, to whom I owe the biggest gratitude of all. Thank you Cheri for taking care of our children and allowing me both the flexibility and time needed to complete this project. To Mariah and Tristen, for being the constant inspiration that continues to drive me forward in pursuit of my goals and the flexibility to be the best daddy that I can be, thank you, I love you.

Table of Contents

List of Tables

Introduction

Public concern over drug use has resulted in broad resources being available for drug resistance education programs. At last count, there were roughly fifty different programs educating youths in an effort to reduce adolescent drug use (Donnermeyer and Russell 1998: 151). Although most communities throughout the nation have adopted some type of drug resistance education program, most evaluations of these programs, with one or two notable exceptions, have discovered little or no impact on youth drug use (Ennett, Tobler, Ringwald, and Flewelling 1994). One view suggests that the variety of situational determinants of drug use is too powerful for a few hours of in-class training to overcome. While that view certainly gains credence from a volume of social science theory and evidence, the purpose of this paper is to propose that drug resistance education programs may show few positive results because they fail to take advantage of well-known evidence and theory on the diffusion of innovations and behavior change. Using the assumptions of the nation's most well-known drug resistance education program (D.A.R.E. Drug Abuse Resistance Education) we will determine the degree to which drug use among youths can be predicted. We will then address how that same behavior can be predicted using the propositions of Everett Rogers' approach to the diffusion of innovations. The fundamental assumption is that those factors that best explain the adoption of a behavior are likely to be the most important in the reduction of the same phenomenon.

Theory

D.A.R.E. (Drug Abuse Resistance Education)

The D.A.R.E. program originated in 1983 through a combined effort between the Los Angeles Police Department and the Los Angeles Unified School District in an effort to educate students about the harmful effects of drugs, alcohol, and tobacco (D.A.R.E., 1988: I). While the program is available to students at grade levels K through 12, the core curriculum targets those students at the fifth and sixth grade level. Dr. Ruth Rich, a curriculum specialist with the Los Angeles Unified School district adapted the core curriculum of the D.A.R.E. program from the design of Project SMART (Self-Management and Resistance Training): a prevention curriculum created by the Health Behavior Institute for the University of Southern California (D.A.R.E., 1988: 41).

While the D.A.R.E. program is also concerned with students' involvement with violence and gangs, this study will focus exclusively on the program's philosophy to provide resistance training to combat adolescent drug, alcohol, and tobacco use. Our concern here is to examine the degree to which those factors included in the D.A.R.E. curriculum, as essential components of resistance education, lead to an explanation of lifetime reported use of drugs, alcohol, and tobacco in our sample of Montana 8^{th}, 10^{th}, and 12^{th} grade students. D.A.R.E.'s involvement with violence and gang resistance training, albeit potentially important, is beyond the scope of interest for this project.

In its present form the D.A.R.E. program does not offer a clear statement describing its view of the drug adoption process.[1] Through an examination of the list of core program elements, however, twelve key points asserted by the program to increase students' ability to resist drugs, alcohol, and tobacco were identified. These key points are presented below in the order they are addressed in the D.A.R.E. curriculum (D.A.R.E., 1988: I-3, 41-47).

Personal safety is the first element addressed in the D.A.R.E. curriculum. The program maintains that in order for students to resist, they must be educated about personal safety. To meet this objective students learn about rules that help them stay safe. In addition, students learn that they have the right to say no to drugs, alcohol, and tobacco. Students learn about their rights as young people and are encouraged to avoid behavior that they feel is wrong. It is asserted that students who develop a sense of personal safety are more likely to resist drugs, alcohol, and tobacco.

D.A.R.E contends that in order for students to resist, they must know about the **harmful effects** of drugs, alcohol, and tobacco. Students learn about the harmful effects of these substances on the body. They are educated about reasons why people choose to use drugs, the risks that are involved and the importance of saying "no". Those students who are educated about the harmful

[1] D.A.R.E. America was queried to assure that a full complement of their materials was presented. They responded stating that all of the information about the program is available on their web page. This work, therefore, uses all D.A.R.E. documents available as of May 1st 1998 and the D.A.R.E. web page http://www.dare.com as of December 15th 1998.

effects are more likely to resist drugs, alcohol, and tobacco, according to D.A.R.E. arguments.

An **awareness of the consequences** associated with drug, alcohol, and tobacco use is presented in the D.A.R.E program as an essential part of resistance education. Students are asked to list the positive benefits and negative consequences associated with drug, alcohol, and tobacco use. The D.A.R.E approach asserts that it is important for youths to realize that the negative consequences are far greater than any possible benefits gained. It is purported that students who are aware of the consequences associated with drug, alcohol, and tobacco use will be more likely to resist their use.

Resistance against **peer pressure** is included as an important part of the training offered through the D.A.R.E. program. Students are taught about the major sources that influence behavior and the important role of peers in this relationship. Students learn that peer pressure may come in varying forms from something as simple as friendly persuasion to severe teasing or threats. The program asserts that students who are able to manage negative peer pressure are more likely to resist drugs, alcohol, and tobacco.

Self-esteem is another critical component of the resistance training offered in the D.A.R.E. program. Students are taught that in order to make positive choices they must develop confidence in their ability to make good decisions. D.A.R.E.

contends that students who are able to maintain high self esteem are more capable of overcoming stress and negative peer pressure and therefore less likely to use or experiment with drugs, alcohol, and tobacco.

Assertiveness techniques are emphasized in the D.A.R.E. approach as a necessary component of drug resistance education. Through role-playing, students learn the difference between passive and assertive techniques. They are then challenged to try these techniques at some point during the following week. D.A.R.E. maintains that those students who develop and utilize assertiveness techniques are more likely to resist the invitation to use or experiment with drugs, alcohol, and tobacco.

Stress is addressed in the D.A.R.E. program as a major factor influencing the decision to use drugs, alcohol, and tobacco. Students are educated about stress: they learn how to identify the causes of stress and are encouraged to avoid stress-producing situations. Students learn that in order to manage stress, they must be able to develop constructive methods to combat it. D.A.R.E. asserts that students taught to recognize stress and methods to cope with it are more likely to resist drugs, alcohol, and tobacco.

The **influence of the media** is also addressed in the D.A.R.E. program. Students learn to identify strategies used by the mass media to promote certain products. As part of a homework assignment, students are challenged to

analyze commercials promoting alcohol and tobacco, looking for the selling points that are used. D.A.R.E contends that students who are able to identify media glamorization of these products are also more likely to resist drugs, alcohol, and tobacco.

The **ability to make mature decisions** is promoted in the D.A.R.E. program as an essential component of drug resistance education. Students learn to evaluate decisions based upon the amount of risk that is involved. They are presented with a step-by-step process that is asserted to help them make better decisions. Role-playing is used to present situations that may occur. Students are encouraged to evaluate the range of possible choices available, along with the positive and negative consequences associated with their decisions. It is asserted that students who learn to make decisions based upon a consideration of consequences and alternatives rather than emotion or peer pressure are more likely to resist drugs, alcohol, and tobacco.

The D.A.R.E. approach maintains that in order for students to resist, they must have **alternatives** to drugs, alcohol, and tobacco. Alternatives such as sports and physical fitness activities are offered as tools for dealing with stress and peer pressure. Students are encouraged to consider activities they enjoy that could be used to relieve stress and as alternatives to drug, alcohol, and tobacco use. The D.A.R.E. approach contends that students who are aware of

alternatives other than drug, alcohol, and tobacco are more likely to avoid using or experimenting with these substances.

The importance of **positive role models** is addressed as a critical component of drug resistance education. The D.A.R.E. officer is asserted to provide a positive role model to students as a representative of the law enforcement community. Older students are also brought into the classroom to encourage students to resist. D.A.R.E. maintains that students who have role models who do not use drugs are more likely to avoid drug, alcohol, and tobacco use.

The D.A.R.E approach asserts that in order for students to resist they must be able to develop and utilize personal **support networks**. Students learn that these networks include their family and friends. They learn that the people in these support networks are available to help them resist drugs, alcohol, and tobacco. The D.A.R.E approach contends that those students who are aware of support from friends and family are more likely to resist drugs, alcohol, and tobacco.

These twelve program components may be stated as hypotheses as follows:

1- Personal Safety: Students who are concerned with personal safety are less likely to use or experiment with drugs, alcohol, and tobacco.

2- Harmful effects: Students who know about their harmful effects are less likely to use or experiment with drugs, alcohol, and tobacco.

3- Consequences: Students who are aware of their consequences are less likely to use or experiment with drugs, alcohol, and tobacco.

4- Peer Pressure: Students who are able to identify and resist peer pressure are less likely to use or experiment with drugs, alcohol, and tobacco.

5- Self-esteem: Students who are able to develop and maintain positive self-esteem are less likely to use or experiment with drugs, alcohol, and tobacco.

6- Assertiveness: Students who develop assertiveness techniques to say "no" are less likely to use or experiment with drugs, alcohol, and tobacco.

7- Stress: Students who are able to manage stress are less likely to use or experiment with drugs, alcohol, and tobacco.

8- Media Influence: Students who are able to resist media glamorization are less likely to use or experiment with drugs, alcohol, and tobacco.

9- Mature Decision Making Abilities: Students who are able to develop more mature decision making abilities are less likely to use or experiment with drugs, alcohol, and tobacco.

10-Alternatives: Students who are aware of alternatives are less likely to use or experiment with drugs, alcohol, and tobacco.

11- Positive Role Model: Students who have positive role models are less likely to use or experiment with drugs, alcohol, and tobacco.

12-Support Systems: Students who are able to develop a support system of

family and friends are less likely to use or experiment with drugs, alcohol, and tobacco.

Everett Rogers' Model of the Diffusion of Innovations

In 1962, Everett Rogers published the first edition of the diffusion of innovations. Since that time, it has undergone three further editions with the fourth edition published in 1995. In the nearly forty years since it's development, the diffusion of innovations has been applied to multiple examinations of technology transmission in the field of agriculture. In addition, it has been used to examine social phenomenon well removed from it's original purpose. The diffusion of innovations is used here to examine teen drug use in an attempt to forward knowledge about reasons why drug use is prevalent among teens and to generate new ideas for possible intervention.

Rogers defines diffusion as "The process by which a new idea is communicated through certain channels over time, among the members of a social system" (Rogers 1995: 5). An innovation is an idea, belief, or technology that is new to the people or group of people to which it is being presented. The diffusion of innovations is the process whereby new ideas, beliefs, and technologies are transmitted from an initial innovator or change agent to other members of a social system.

In order for an innovation to be successfully transmitted, a need for the new idea must exist, or be perceived to exist, at the time it is presented. The innovation-decision process is a five-stage transition through which an individual or group must pass in order to complete the adoption of an innovation. While progression through the innovation-decision process may vary, each stage is a potential rejection point, where a potential innovator decides against the new idea, therefore exiting the innovation process.

The first stage in the innovation-decision process is **knowledge**. Here, a potential user is given information about drugs. This includes a basic understanding of the technique needed to use drugs along with the anticipated effects.[2] Rogers states that while most knowledge about an innovation is sought to address a perceived need, knowledge of an innovation may also create a need that previously did not exist. Adolescent drug use, then, may result to address a perceived need of a potential user, or as a result of hearing about drugs and their advantages from someone else, or having seen the benefits that users gain such as acceptance, social prestige and becoming known among admired people.

After knowledge about drugs is obtained, adolescents are conditioned to desire the advantages that have been presented. This is the **persuasion** stage. At this stage, an attitude is developed based upon the information experienced. If this attitude is negative, the potential user may decide to drop out of the

[2] This insight, originally applied to agricultural innovations, is strikingly similar to Howard Becker's model that examines the process of learning to smoke marijuana (Becker, 1966).

innovation. A positive attitude however, may lead to a decision being made to try drugs for the first time. This is the **decision** stage of the adoption process.

If the potential user has developed a positive attitude toward drugs in the previous stage they must decide to try drugs in order to continue the adoption process. This is the **implementation** stage. It is here that use will occur for the first time. After the trial attempt, however, the new user may or may not decide to use drugs again. The decision to continue using drugs is based upon the degree to which the new user is convinced that they have made the right choice. This is the **confirmation** stage. At this final stage, adolescent users seek reinforcement from peers, close friends and others supporting their decision. If, after using drugs for the first time, the new user is convinced that they have made the right choice, the likelihood that they will continue to use drugs is very good. However, if the response from peers, family and others is not confirmatory, or if the new user did not enjoy the effects experienced, future use is very unlikely.

The innovation-decision process presented by Rogers allows for an examination of the progression into drug use. It is however, very difficult conceptually to test the elements presented in the model with results from a cross-sectional survey like the one used in this study. Rogers does, however, provide good measures of the key elements in the innovation-decision process. These measures are presented in a manner conducive to conceptualization and

testing with the data available. These elements used are: Relative Advantage, Compatibility, Complexity, Triability, and Observability.

Although many innovations are introduced, they tend to be diffused and implemented at differing rates. Some are adopted immediately, while others are never adopted. The rate at which an innovation is adopted is influenced, in part, by the **relative advantage** it offers over the idea that it is replacing. Rogers defines the relative advantage of an innovation as "the degree to which it is perceived as being better than the practices it supersedes" (Rogers 1995: 212). He gives the following example to illustrate relative advantage. In the early 1980's very few people had VCR's due to the substantial cost. As the demand increased and the price dropped dramatically however, more and more people bought VCR's. Consequently, one is hard pressed to enter a home today and not find a VCR. This drastic reduction in price is viewed as a relative advantage.

The relative advantages associated with adolescent drug use are a sense of looking cool, a perceived maturity associated with use, and the ability to fit in with peers. Drug use is viewed in terms of the benefits that it provides. To the degree that drug use is seen as a means to gain social prestige, the greater the likelihood that use and experimentation with drugs will occur.

Another factor affecting the adoption of an innovation is its **compatibility** with the system where it will be used. Compatibility is defined as "the degree to

which an innovation is perceived as consistent with existing values, past experiences, and needs of potential adopters" (Rogers 1995: 224). To illustrate compatibility, Rogers speaks about the norm in modern India against eating food with the left hand. He identifies the degree of difficulty that would exist in trying to persuade 900 million Indians to stop eating with their right hand. Due to the fact that this change violates a cultural norm, the likelihood that it will be adopted is significantly less than it might otherwise have been.

Parents' attitude toward drug use, along with the attitudes of close friends determine to a large degree how compatible this behavior will be in a potential user's life. Those adolescents whose family and friends feel that drug use is acceptable are not forced to weigh the possibility of rejection from family and friends. This facilitates the transition into use and experimentation with drugs. This transition may also be facilitated by the perceived need for drug use in an adolescent's life. To the degree that drug use is compatible with the attitudes and beliefs of a potential users friends, family, and peers, the greater the likelihood that use will occur.

Complexity also affects the rate at which an innovation will be adopted. Rogers defines complexity as "the degree to which an innovation is perceived as relatively difficult to understand and use" (Rogers 1995: 242). To illustrate complexity, Rogers speaks about the first users of the home computer as being hobbyists who loved technological gadgets. To them the computer was a

relatively simple device, something to play around on in their spare time. It wasn't until the early 1980's when lay people began using personal computers that the complexity involved became an issue. This relationship is seen around the world today, with personal computer users who interact with their machines as though they are living beings that respond to verbal threats and stimulation.

Perceived risk and availability are both factors affecting the complexity of adolescent drug use. Those youths who do not associate a large degree of risk with drug use and those reporting little difficulty in obtaining drugs are more likely to become involved with drug use than those who report great risk and little availability or opportunity. In essence then, the more complex drugs are perceived to be by the potential user in regard to perceived risk and availability, the less likely that use will occur.

A fourth factor effecting the adoption of an innovation is its **trialability**. Trialability is defined as "the degree to which an innovation may be experimented with on a limited basis" (Rogers 1995: 243). An example of trialability would be a tractor salesman, who rather than insisting a farmer purchase his product, chooses to leave it with the farmer for a few days saying, "Try it out and let me know what you think". In this manner, the salesman has the advantage of letting the tractor sell itself. The farmer is not pressured to purchase the product, rather through a trial attempt he is able to test the advantages for himself. The

salesman is confident that the advantages will be such that the farmer will be unable to resist the new technology.

The ability to experiment with drugs is a measure of their trialability. Adolescents who have seen peers, siblings, parents, and other adults use drugs are more likely to experiment with drugs themselves. If drug use is viewed by the potential user as something that they could be "hooked" on or addicted to after one time, the decision to experiment will be much more difficult than it would be for potential users who had previously viewed others experiment without addiction. To the degree that adolescents can experiment with drugs, or watch others around them experiment, the greater the likelihood that use will occur.

Observability or "the degree to which the results of an innovation are visible to others" (Rogers 1995: 244) also affects an innovation's rate of adoption. To illustrate observability Rogers gives the example of safe sex. Experts state that in order to avoid transmission of the HIV/AIDS virus safe sex practices must be used. However, the ambiguous nature of the term "safe sex" coupled with the lack of reported cases of HIV/AIDS in certain parts of the nation have failed to show immediate results that are observable to at risk populations. This lack of observability to measure the expert's claim has lead to a disregard by many of this warning resulting in unprotected sex rates that are still very high in the United States today.

The ability to see that others view the adolescent drug user as cool or mature is a critical factor in determining whether or not use will continue. If the reaction by others is different than the new user had anticipated, a re-evaluation of the innovation may occur and the individuals use of drugs may be limited to a one-time experiment. If however, the response from drug use is favorable, the new user is likely to continue to use drugs as a means of generating prestige from friends, family, and others. Therefore, to the degree that the perceived results can be seen in those closest to the new user, the greater the likelihood that use will continue after the trial attempt.

The **communication channel** used to present an innovation is also an important part of the adoption process. Although the mass media are effective tools to communicate a new idea to a large group of people, interpersonal channels, (those involving face-to-face interaction) are more likely to result in a positive attitude toward the new idea. The effectiveness of a channel through which a potential user might receive information about drug use is influenced by a term Rogers refers to as "homophily". Homophily is defined as "the degree to which two or more individuals who interact are similar in certain attributes, such as beliefs, education, social status, and the like" (Rogers 1995: 19).

In regard to adolescent drug use, the channel through which drug use is communicated determines to a large degree the rate at which it will be adopted. The best channels for transmitting drug-using behaviors to adolescent youths are

those involving close friends and family. These channels are likely to be homophilous. The established norms and values in these channels are also likely to be the same norms and values of the potential user. To the degree that drug use is transmitted among channels involving peers, close friends and family, the greater the rate at which and the likelihood that a new user will use or experiment with drugs.

The diffusion of innovations offers a comprehensive look into the process whereby a new idea is presented and implemented or rejected. It allows for an examination of the factors that facilitate the transmission of drug using behaviors among adolescents. From the diffusion of innovations approach we are presented with the following hypotheses:

1- Relative Advantage: Students who report drug use as a means to gain social prestige are more likely to use or experiment with drugs, alcohol, and tobacco.

2- Compatibility: Students who report that drug, alcohol, and tobacco use will not conflict with the beliefs of parents and peers are more likely to use or experiment.

3- Complexity: Students who report a small amount of perceived risk and little difficulty in obtaining drugs, alcohol, and tobacco are more likely to use or experiment.

4- Triability: Students who report higher levels of risk taking behavior are more likely to use or experiment.

5- Observability: Students who report that they know someone who uses drugs, alcohol and tobacco, are more likely to use and experiment.

Data and Methods

Data

The data for this project come from a survey of students in Montana's public education system. Students in selected Montana schools at the 8th, 10th, and 12th grade levels were administered the Montana Prevention Needs Assessment Survey[3] during the 1997-1998 academic year. The total number surveyed after excluding cases containing missing data is 14,192. Over 99% of those surveyed were between the ages of 13–18. The male/female distribution shows 49.6% of the respondents were males and 50.4% females. Of those responding, 84.7% considered themselves to be White, not of Hispanic origin vs. 7.9% of Native American and 2.2% who claimed to be of Spanish/Latino/Hispanic descent. In addition, 28.4% of the respondents claimed to live on a farm or in the country, while 71.6% reported they lived in a city or town. The survey contains questions regarding various aspects of students' lives including attitudes toward, and reported use of illicit drugs, alcohol, and tobacco. The survey instrument also contains a section asking students about the availability of these substances, along with sections containing neighborhood characteristics, family characteristics and perceptions of the behaviors of close friends.

[3] A copy of the Montana Prevention Needs Assessment Survey is included in Appendix I of this document for reference.

Logic of the Analysis

The question of interest in this study is "How important are those factors that best explain the adoption of a behavior (in this case drug, alcohol, and tobacco use) in the reduction of the same phenomenon?" To answer this question the degree to which both the D.A.R.E. and the Rogers Diffusion of Innovations models predict adolescent reported use of drugs, alcohol and tobacco must be derived. The objective here is to examine both models individually to identify those factors in each that are shown to be good predictors and to compare and contrast both models. In line with the question that is being addressed, this study is concerned with how the current D.A.R.E model could benefit from existing knowledge about human behavior contained in the diffusion of innovations approach.

A third focus of this paper addresses the importance of identifiable risk factors as predictors of adolescent drug use. The risk factors approach maintains that there are critical factors associated with adolescent drug use. The approach asserts that as the number of these risk factors increases, so does the likelihood that drug, alcohol, and tobacco use will occur. We propose that the number of risk factors reported is important, rather than any specific combination of factors. An individual reporting any four risk factors therefore, is more likely to use drugs, alcohol and tobacco than an individual reporting any two risk factors regardless of which combination of factors are reported.

A model containing eight risk factors supported in the literature is presented in the analysis to provide additional information about adolescent drug use. This model will allow the researcher to test additional variables that were not identified in the D.A.R.E. and Diffusion of Innovations Models and assess the degree to which they predict reported use in this data set. The factors included in the model are: perceived peer acceptance of drug use (Newcomb 1986, Farrell et al. 1992, Greenwood 1992, Vega 1993, Farrell 1993), school enjoyment (Graham 1996, Farrell 1992), lack of social conformity (Newcomb 1986, Greenwood 1992, Felix-Ortiz 1992, Farrell 1993, Vega 1993, Graham 1996), psychopathology (Newcomb 1986, Greenwood 1992, Farrell et al. 1992, Felix-Ortiz 1992, Vega 1993), perception of adult use (Newcomb 1986, Farrell et al. 1992, Felix-Ortiz 1992, Vega 1993, Farrell 1993), sibling use (Greenwood 1992, Felix-Ortiz 1992, Vega 1993), G.P.A. (Newcomb 1986, Greenwood 1992, Felix-Ortiz 1992, Graham 1996), and religiosity (Newcomb 1986, Greenwood 1992, Felix-Ortiz 1992) [4].

Variables and Measures

The variables that used in this analysis are operationalized[5] below as follows:

Dependent Variable:

Lifetime Reported use is a measure of the respondent reported lifetime use of

[4] Some factors identified in the D.A.R.E. and Diffusion of Innovations models have been listed as risk factors in that body of literature.

[5] The questions used to operationalize the variables used in the analysis are presented verbatim in Appendix II at the conclusion of this document.

alcohol, tobacco, and an assortment of illicit drugs, ranging from zero to 40+ times.

Independent Variables:

D.A.R.E. Variables

1- **Personal safety** is a measure of reported security in the community and at home.

2- **Harmful Effect** is a measure of the perceived effects of drug, alcohol, and tobacco use.

3- **Consequences** is a measured of the negative outcomes associated with drug, alcohol, and tobacco use.

4- **Peer Pressure** is a measure of peer influence on the decisions of students.

5- **Self-esteem** is a measure of students' perceptions about themselves as well as their perceptions of how they think others feel about them.

6- **Assertiveness** is a measure of students' ability to resists peer pressure.

7- **Stress** is a measure of reported conflict among members of the respondents' family.

8- **Media Influence** is not included in the analysis due to an inadequate measure to operationalize this variable.

9- **Mature Decision-Making Abilities** is a measure of students' ability to think logically and weigh the costs and benefits of decisions they make.

10- **Alternatives** is a measure of other things to do in the community other than drugs, alcohol, and tobacco.

11- **Positive Role Model** is a measure of older adults who influence the behavior of the respondent.

12-**Support Systems** is a measure of friends, family and peers used to help students resist drug, alcohol, and tobacco use.

Diffusion of Innovation Variables

1- **Relative Advantage** is a measure of the perceived benefits associated with drug, alcohol, and tobacco use.

2- **Compatibility** is a measure of the degree to which drug using behavior is compatible in the lives of potential users.

3- **Complexity** is a measure of the degree of difficulty associated with drug, alcohol, and tobacco use.

4- **Triability** is a measure of the degree of risk an individual is willing to take.

5- **Observability** is a measure of the degree to which adolescent drug users can see the results from drug, alcohol, and tobacco use in friends, family, and peers.

Risk factors variables

1- **Perceived Peer Acceptance of Drug Use** is a measure of reported peer use of drugs, alcohol, and tobacco.

2- **School Enjoyment** is a measure of how often students reported that they enjoyed being in school.

3- **Lack of Social Conformity** is a measure of reported deviance.

4- **Psychopathology** is a measure of students reported degree of happiness with life.

7- **Perception of Adult Use** is a measure of perceived adult use of drugs.

8- **Sibling Use** is a measure of perceived sibling use of drugs, alcohol, and tobacco.

9- **G.P.A** is a measure of reported grades over the past year.

10- **Religiosity** is a measure of how often the respondent attended religious services.

Analysis

The indicators are used in an ordinary least squares analysis. The key factors taken from the D.A.R.E model are addressed in the analysis first. Using ordinary least squares regression, the independent variables from the D.A.R.E. model are regressed on a single dependent variable. In this analysis the dependent variable is a measure of students lifetime reported use of drugs, alcohol, and tobacco taken from the responses given on the Montana Prevention Needs Assessment questionnaire. After the D.A.R.E model has been computed, this process is applied to the diffusion of innovations and risk factors models.

The results obtained through the analysis are reported in a table by table analysis of the three models examining the degree to which they predict lifetime reported use in this data set. While the primary objective is to examine the degree to which each of the three models predicts use, individual factors will be

addressed within each model to allow the reader to see those factors that were or were not significant predictors of the dependent variable in this data set.

Results

D.A.R.E.

Table 1. Regression Equation D.A.R.E. Model

Variables	b	β	p
Personal safety	.005200	.014	.047
Harmful Effects	-.394	-.144	.001
Consequences Associated with Use	-.930	-.465	.001
Peer Pressure	.002460	.009	.199
Self Esteem	000.004	-.016	.038
Assertiveness	-.738	-.151	.000
Stress	.104	.019	.009
Ability to Make Mature Decisions	-.260	-.123	.000
Alternatives	.003800	-.006	.356
Positive Role Model	.001100	.004	.631
Suppport Network	.003640	-.013	.109
Model	**R**	**N = 14,192**	**R^2**
	.749		.562

Table 1, shows the regression equation of the D.A.R.E. model which was able to explain 56.2% of the variance in the dependent variable *Lifetime Reported Use*. While the R^2 value is relatively large, the majority of the explained variance is due to the effect of four variables. *Consequences Associated with Use* is the most significant predictor with a beta value of -.465. This negative relationship shows that as the level of awareness about the consequences associated with drug, alcohol, and tobacco use increases, the likelihood, or rate at which students' report using these substances decreases. *Assertiveness* (β = -.151), also a significant predictor of reported use, indicates that as a students

reported ability to say "no" to drugs, alcohol, and tobacco increases, the amount of reported use decreases. *Harmful Effects* (β= -.144) proved to be a significant predictor showing that as the level of awareness of the harm caused by drugs, alcohol, and tobacco increases, the reported use of these substances decreases. The final factor to emerge as a significant predictor is *Ability to Make Mature Decisions* (β= -.123). This relationship shows as the level to which students' can evaluate their decisions focusing on long-term effects increases, the level of reported use decreases. When the equation was computed using the stepwise regression option of SPSS, these four factors emerged as the only significant predictors in the model.

Self Esteem, *Peer Pressure*, *Stress*, *Positive Role Model*, and *Support Network*, all components affirmed in the D.A.R.E approach as critical factors of resistance education, did not prove to be significant predictors in the responses of students surveyed in this study. While these variables lack of explanatory power may be due to inadequate operationalization, the present finding is also consistent with the literature cited above.

Diffusion of Innovations

Table 2 shows the regression equation obtained from the Diffusion of Innovations model. The R^2 value indicates that the model accounts for 60% of the variance in the dependent variable *Lifetime Reported Use*. All of the variables examined, with the exception of *Complexity*, a variable measuring the

difficulty in obtaining and using drugs, alcohol, and tobacco (β = .070), are shown to be robust predictors. *Relative Advantage*, the strongest predictor in the model (β = .543), indicates that as the level of perceived benefit from use increases so does the likelihood that it will occur. *Compatibility* (β = .347) shows as the

Table 2. Regression Equation Diffusion of Innovations Model

Variables	b	β	p
Relative Advantage	.786	.543	.001
Compatibility	.432	.347	.001
Complexity	.174	.070	.001
Trialability	.246	.117	.001
Observability	.732	.289	.001
Model	**R**	**N** = 14,192	**R^2**
	.774		.600

degree to which students' feel use is compatible with the behaviors of family and friends increases, the probability that a student will report lifetime use of drugs, alcohol, and tobacco increases as well. *Observability* (β = .289) measures the degree to which students perceive others attitudes toward use to be positive. As the level of perceived acceptance by peers increases, so does the likelihood that the respondent will report prior use of drugs, alcohol, and tobacco. *Trialability* (β = .117), indicates as the level to which students are able to observe others using drugs, alcohol, and tobacco, the greater the likelihood that they will report lifetime use of these substances.

The diffusion of innovations model is intended to show factors that facilitate the transition into drug using behaviors therefore, the positive relations between the factors contained in the model and *Lifetime Reported Use* are to be

expected. All five of the factors examined were shown to be significant when entered simultaneously; however, when the equation was computed using the stepwise regression function in SPSS, *Complexity* was omitted from the model due to that variables' inability to effectuate change in the model R^2 value. Although *Complexity* was not shown to be a statistically significant indicator, theoretically and intuitively the measure is an important one with regard to adolescent drug, alcohol, and tobacco use.

Risk Factors

Table 3 shows the regression equation for the risk factors model. The model, as shown through the R^2 value was able to predict 68.4% of the variance in the dependant variable, proving to be the best predictor of *Lifetime Reported Use*. This is not surprising considering the nature of the three models presented. The D.A.R.E and Diffusion of Innovations models both have conceptual bases, while the risk factors model is constructed from variables shown in previous studies to be significant predictors of adolescent drug use. Although the R^2 value is relatively large, it is primarily due to three variables; *Lack of Social Conformity* (β = .380), *Perceived Peer Acceptance of Use* (β = .362), and *Perceptions of Adult use* (β= .201). In essence, as the level of reported deviance, peer acceptance of use, and perceived adult use increased, so did the likelihood that the respondent reported lifetime use of drugs, alcohol, and tobacco.

Table 3. Regression Equation Risk Factors Model

Variables	b	β	p
Perceived Peer Acceptance of Use	.362	.311	.000
School Enjoyment	.118	.033	.000
Lack of Social Conformity	1.215	.380	.000
Psychopathology	.000427	-.002	.773
Perceptions of Adult Use	.412	.201	.000
Sibling Use	.411	.088	.000
G.P.A	-.707	-.080	.000
Religiosity	-.368	-.051	.000
Model	R	N = 14,192	R^2
	.827		.684

When computed using the stepwise regression function in SPSS, the variables *G.P.A.* (β= -.080) and sibling use (β= .88) were also included in the model. Although there relationships are not as strong as the other three identified above, students with higher reported grade point averages report slightly lower rates of lifetime use of alcohol, drugs, and tobacco. Conversely, as the amount of reported sibling use increases, so does the likelihood of students reported prior use of these substances. The remaining variables in the model were unable to effect any change in the dependent variable and therefore were excluded by SPSS from the final stepwise model.

Conclusions

While all three of the models presented were good predictors of adolescent substance use, the diffusion of innovations model proved to be the most powerful. Four of the five factors included in the Rogers' model were

shown to be significant, while only four of the eleven components of the D.A.R.E. model and four out of the eight components of the risk factors model resulted as significant predictors. This is an important finding when considering that both the D.A.R.E. and risk factors models were specifically created to look at the drug use. The diffusion of innovations model, in contrast, was developed nearly forty years ago to examine the diffusion and adoption of agriculture practices and technology. The degree to which the model has been able to explain adolescent drug use suggests a need for more theoretically based explanations and examinations of this phenomenon.

Another important finding is the amount of overlap among the variables shown in the analysis as significant predictors from the three models. C*onsequences Associated with Use*, the strongest indicator in the D.A.R.E. model, is a comparable measure of relative advantage as it is presented in the Rogers model. *Perceptions of Adult Use* and *Perceived Peer Acceptance of Use*, both significant indicators in the risk factors model, are similar measures of the variable compatibility in the diffusion of innovations model.

Furthermore, this study has been able to generate a critique of the D.A.R.E model not adequately addressed in prior literature. While self-esteem, positive role modeling, stress, and peer pressure are presented as critical components for drug resistance in the D.A.R.E. program, they had very little explanatory power with regard to reported lifetime use of drugs, alcohol, and

tobacco. The introduction of the diffusion of innovations model has expanded the ability to which we are able to evaluate effectively programs like D.A.R.E. and identified the need to examine critically existing drug resistance education in American schools.

The degree to which the diffusion of innovations model has been able to explain adolescent drug use highlights the need for a continuation of studies like the one presented here. It supports the initial assumption that those factors that facilitate the adoption of drug using behaviors may be very important in the reduction of this phenomenon and therefore, must be given adequate attention in drug resistance curriculum. It has also shown the importance and utility of theoretical models based on a foundation of core sociological findings to explain both the social processes for which they were originally intended and those beyond the scope of their original purpose.

It is shown here with regard to predicting teen drug use, the following factors are of critical importance: attitudes of peers, parental involvement and the consequences associated with use. The attitudes of friends is shown in this study, as a major component of relative advantage and compatibility in the diffusion of innovations, to be the most powerful influence on reported teen drug use. Parents' attitudes toward drugs are also shown to be of importance with regard to teen use. Although peers are shown to be the most influential factor in the decision to use, students in this study gave credence to the attitudes that

they associated with their parents. Parents, therefore, need to realize how important their attitudes are in determining whether or not their children will experiment with drugs. Along with these two factors, emphasis should be placed on the consequences associated with use. I would recommend that that the consequences associated with drug use include the lack of opportunities that result , along with possible health hazards associated with use.

In conclusion, the majority of work that has been done to evaluate the effectiveness of school-based drug resistance education programs, to this point, has resulted in very little new knowledge about use. Although much time and money has been allocated to examine this phenomenon, we as a science still know very little about the root causes of adolescent drug use. This may be because of the seemingly narrowly pragmatic and atheoretical nature of previous work. Future studies may want to explore the use of other behavioral models similar to the diffusion of innovations in an effort to advance existing knowledge about adolescent drug use and as a way to improve both the evaluation and effectiveness of school based drug resistance education. We have shown the importance of theoretically informed research in this important area of concern. Surely research following this brief study must continue to be grounded in and expand the scope of current theories that deal with adolescent drug use.

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Appendices

Appendix I

Montana Prevention Needs Assessment Survey

MONTANA PREVENTION NEEDS ASSESSMENT SURVEY

1. Thank you for agreeing to participate in this survey. The purpose of this survey is to gather information needed to plan alcohol and drug prevention programs for Montana's schools and communities.
2. The survey is completely voluntary, anonymous, and confidential. It will take about one class period to finish. **DO NOT put your name on the questionnaire.**
3. This is not a test, so there are no right or wrong answers. We would like you to work quickly so you can finish
4. All of the questions should be answered by **completely** filling in one of the answer spaces. If you do not find an answer that fits exactly, use the one that comes closest. If any question does not apply to you, or you are not sure what it means, just leave it blank. **You can skip any question that you do not wish to answer.**
5. For questions that have the following answers: **NO! no yes YES!**
   Mark (the BIG) **YES!** if you think the statement is **DEFINITELY TRUE** for you.
   Mark (the little) **yes** if you think the statement is **MOSTLY TRUE** for you.
   Mark (the little) **no** if you think the statement is **MOSTLY NOT TRUE** for you.
   Mark (the BIG) **NO!** if you think the statement is **DEFINITELY NOT TRUE** for you.

   Example: Chocolate is the best ice cream flavor.
   ○ NO! ○ no ● yes ○ YES!

   In the example above, the student marked "yes" because he or she thinks the statement is mostly true.

Please mark only one answer for each question by completely filling in the circle.

These questions ask for some general information about the people completing the survey. Please mark the response that best describes you.

1. How old are you?
   ○ 13 ○ 15 ○ 17 ○ 19 or older
   ○ 14 ○ 16 ○ 18
2. What grade are you in? ○ 8th ○ 10th ○ 12th
3. Are you: ○ Male ○ Female
4. What do you consider yourself to be? (Choose one best answer.)
   ○ White, not of Hispanic Origin
   ○ American Indian/Native American, Eskimo, or Aleut
   ○ Spanish/Hispanic/Latino
   ○ Black or African American
   ○ Asian or Pacific Islander
   ○ Other (Please Specify _____)
5. Think of where you live most of the time. Which of the following people live there with you? (Choose all that apply.)
   ○ Mother
   ○ Stepmother
   ○ Foster Mother
   ○ Grandmother
   ○ Aunt
   ○ Father
   ○ Stepfather
   ○ Foster Father
   ○ Grandfather
   ○ Uncle
   ○ Other adults
   ○ Brother(s)
   ○ Stepbrother(s)
   ○ Sister(s)
   ○ Stepsister(s)
   ○ Other children
6. What is the language you use most often at home?
   ○ English ○ Spanish ○ Another Language
7. Where are you living now?
   ○ On a farm
   ○ In the country, not on a farm
   ○ In a city, town, or suburb
8. What is the zip code where you live? Write in the numbers and darken the circles for your zip code.

5	9			
0	○	○	○	○	○
1	○	○	○	○	○
2	○	○	○	○	○
3	○	○	○	○	○
4	○	○	○	○	○
5	●	○	○	○	○
6	○	○	○	○	○
7	○	○	○	○	○
8	○	○	○	○	○
9	○	●	○	○	○

9. What is the highest level of schooling your father completed?
   ○ Completed grade school or less
   ○ Some high school
   ○ Completed high school
   ○ Some college
   ○ Completed college
   ○ Graduate or professional school after college
   ○ Don't know
   ○ Does not apply
10. What is the highest level of schooling your mother completed?
    ○ Completed grade school or less
    ○ Some high school
    ○ Completed high school
    ○ Some college
    ○ Completed college
    ○ Graduate or professional school after college
    ○ Don't know
    ○ Does not apply

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The next section asks about your experiences at school.

11. During the LAST FOUR WEEKS how many whole days of school have you missed...

a. because of illness
O None O 1 O 2 O 3 O 4-5 O 6-10 O 11 or more

b. because you skipped or "cut"
O None O 1 O 2 O 3 O 4-5 O 6-10 O 11 or more

c. for other reasons
O None O 1 O 2 O 3 O 4-5 O 6-10 O 11 or more

	NO!	no	yes	YES!
12. In my school, students have lots of chances to help decide things like class activities and rules.	O	O	O	O
13. Teachers ask me to work on special classroom projects.	O	O	O	O
14. My teacher(s) notices when I am doing a good job and lets me know about it.	O	O	O	O
15. There are lots of chances for students in my school to get involved in sports, clubs, and other school activities outside of class.	O	O	O	O
16. There are lots of chances for students in my school to talk with a teacher one-on-one.	O	O	O	O
17. I feel safe at my school.	O	O	O	O
18. The school lets my parents know when I have done something well.	O	O	O	O
19. My teachers praise me when I work hard in school.	O	O	O	O
20. Are your school grades better than the grades of most students in your class?	O	O	O	O
21. I have lots of chances to be part of class discussions or activities.	O	O	O	O

22. Now thinking back over the past year in school, how often did you:	Never	Seldom	Sometimes	Often	Almost always
a. enjoy being in school?	O	O	O	O	O
b. hate being in school?	O	O	O	O	O
c. try to do your best work in school?	O	O	O	O	O
23. How often do you feel that the school work you are assigned is meaningful and important?	O	O	O	O	O

24. Putting them all together, what were your grades like last year?

O Mostly F's O Mostly C's O Mostly A's
O Mostly D's O Mostly B's

25. How important do you think the things you are learning in school are going to be for your later life?

O Very important O Slightly important
O Quite important O Not at all important
O Fairly important

26. How interesting are most of your courses to you?

O Very interesting and stimulating O Slightly dull
O Quite interesting O Very dull
O Fairly interesting

The next questions ask about your feelings and experiences in other parts of your life.

27. Think of your four best friends (the friends you feel closest to). In the past year (12 months), how many of your best friends have...	Number of friends 0	1	2	3	4
a. smoked cigarettes?	O	O	O	O	O
b. tried beer, wine or hard liquor (for example, vodka, whiskey or gin) when their parents didn't know about it?	O	O	O	O	O
c. used marijuana?	O	O	O	O	O
d. used inhalants (sniffed glue or inhaled gases or sprays)?	O	O	O	O	O
e. used LSD, cocaine, amphetamines, or other illegal drugs?	O	O	O	O	O
f. been suspended from school?	O	O	O	O	O
g. carried a handgun?	O	O	O	O	O
h. sold illegal drugs?	O	O	O	O	O
i. stolen or tried to steal a motor vehicle such as a car or motorcycle?	O	O	O	O	O
j. been arrested?	O	O	O	O	O
k. dropped out of school?	O	O	O	O	O
l. been members of a gang?	O	O	O	O	O

28. What are the chances you would be seen as cool if you:	No or very little chance	Little chance	Some chance	Pretty good chance	Very good chance
a. smoked cigarettes?	O	O	O	O	O
b. began drinking alcoholic beverages regularly, that is, at least once or twice a month?	O	O	O	O	O
c. smoked marijuana?	O	O	O	O	O
d. carried a handgun?	O	O	O	O	O

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29. How old were you when you first:

	Never	10 or Younger	11	12	13	14	15	16	17 or Older
a. smoked marijuana?	O	O	O	O	O	O	O	O	O
b. smoked a cigarette, even just a puff?	O	O	O	O	O	O	O	O	O
c. had more than a sip or two of beer, wine or hard liquor (for example, vodka, whiskey, or gin)?	O	O	O	O	O	O	O	O	O
d. began drinking alcoholic beverages regularly, that is, at least once or twice a month?	O	O	O	O	O	O	O	O	O
e. used inhalants (sniffed glue or inhaled gases or sprays)?	O	O	O	O	O	O	O	O	O
f. got suspended from school?	O	O	O	O	O	O	O	O	O
g. got arrested?	O	O	O	O	O	O	O	O	O
h. carried a handgun?	O	O	O	O	O	O	O	O	O
i. attacked someone with the idea of seriously hurting them?	O	O	O	O	O	O	O	O	O
j. belonged to a gang?	O	O	O	O	O	O	O	O	O

30. How wrong do you think it is for someone your age to:

	Very Wrong	A Little Bit Wrong	Wrong	Not Wrong at All
a. take a handgun to school?	O	O	O	O
b. steal anything worth more than $5?	O	O	O	O
c. pick a fight with someone?	O	O	O	O
d. attack someone with the idea of seriously hurting them?	O	O	O	O
e. stay away from school all day when their parents think they are at school?	O	O	O	O
f. drink beer, wine or hard liquor (for example, vodka, whiskey or gin) regularly?	O	O	O	O
g. smoke cigarettes?	O	O	O	O
h. smoke marijuana?	O	O	O	O
i. use inhalants (sniff glue or inhale gases or sprays)?	O	O	O	O
j. use LSD, cocaine, amphetamines or another illegal drug?	O	O	O	O

31. How many times have you done the following things?

	Never	I've done it, but not in the past year	Less than once a month	About once a month	2 or 3 times a month	Once a week or more
a. Done what feels good no matter what.	O	O	O	O	O	O
b. Done something dangerous because someone dared you to do it.	O	O	O	O	O	O
c. Done crazy things even if they are a little dangerous.	O	O	O	O	O	O

32. How many times in the past year (12 months) have you:

	Never	1 to 2 times	3 to 5 times	6 to 9 times	10 to 19 times	20 to 29 times	30 to 39 times	40+ times
a. been suspended from school?	O	O	O	O	O	O	O	O
b. carried a handgun?	O	O	O	O	O	O	O	O
c. sold illegal drugs?	O	O	O	O	O	O	O	O
d. stolen or tried to steal a motor vehicle such as a car or motorcycle?	O	O	O	O	O	O	O	O
e. been arrested?	O	O	O	O	O	O	O	O
f. attacked someone with the idea of seriously hurting them?	O	O	O	O	O	O	O	O
g. been drunk or high at school?	O	O	O	O	O	O	O	O
h. taken a handgun to school?	O	O	O	O	O	O	O	O

33. Have you ever received an alcohol or drug related ticket?
O No O Yes

34. Are you on probation with Montana Juvenile Corrections?
O No O Yes

35. Have you ever belonged to a gang?
O No O Yes

36. If you have ever belonged to a gang, did the gang have a name?
O No O Yes O I never have belonged to a gang

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37. It's 8:00 on a weeknight and you are about to go over to a friend's home when your mother asks you where you are going. You say "Oh, just going to go hang out with some friends." She says, "No, you'll just get into trouble if you go out. Stay home tonight." What would you do now?

- O Leave the house anyway
- O Explain what you are going to do with your friends, tell her when you will get home, and ask if you can go out
- O Not say anything and start watching TV
- O Get into an argument with her

38. You're looking at CD's in a music store with a friend. You look up and see her slip a CD under her coat. She smiles and says "Which one do you want? Go ahead, take it while nobody's around." There is nobody in sight, no employees and no other customers. What would you do now?

- O Ignore her
- O Grab a CD and leave the store
- O Tell her to put the CD back
- O Act like it is a joke, and ask her to put the CD back

39. You are visiting another part of town, and you don't know any of the people your age there. You are walking down the street, and some teenager you don't know is walking toward you. He is about your size, and as he is about to pass you, he deliberately bumps into you and you almost lose your balance. What would you say or do?

- O Push the person back
- O Say "Excuse me" and keep on walking
- O Say "Watch where you are going" and keep on walking
- O Swear at the person and walk away

40. You are at a party at someone's house, and one of your friends offers you a drink containing alcohol. What would you say or do?

- O Drink it
- O Tell your friend, "No thanks, I don't drink" and suggest that you and your friend go and do something else
- O Just say, "No thanks" and walk away
- O Make up a good excuse, tell your friend you had something else to do, and leave

41. How often do you attend religious or spiritual services or activities?

O Never O 1-2 Times a Month
O Rarely O About Once a Week or More

42. If you are American Indian/Native American, how often do you participate in traditional cultural events (pow wows, sweats, etc.)?

O Never O 1-2 times a month
O Rarely O About once a week or more
O I am not American Indian/Native American

43. I do the opposite of what people tell me, just to get them mad.

O Very False O Somewhat True
O Somewhat False O Very True

	NO!	no	yes	YES!
44. I think sometimes it's okay to cheat at school.	O	O	O	O
45. It is important to think before you act.	O	O	O	O
46. Do you have to have everything right away?	O	O	O	O
47. Do you often switch from activity to activity rather than sticking to one thing at a time?	O	O	O	O
48. I often do things without thinking about what will happen.	O	O	O	O
49. Sometimes I think that life is not worth it.	O	O	O	O
50. At times I think I am no good at all.	O	O	O	O
51. All in all, I am inclined to think that I am a failure.	O	O	O	O
52. In the past year, have you felt depressed or sad MOST days, even if you felt OK sometimes?	O	O	O	O
53. It is all right to beat up people if they start the fight.	O	O	O	O
54. I think it is okay to take something without asking if you can get away with it.	O	O	O	O

55. I like to see how much I can get away with.

O Very False O Somewhat True
O Somewhat False O Very True

56. I ignore rules that get in my way.

O Very False O Somewhat True
O Somewhat False O Very True

57. Do you receive regular health care examinations or check-ups? O Yes O No

If "NO", why not? Mark all that apply

- O There aren't any medical services available
- O It costs too much
- O No insurance coverage
- O I don't have a way to get to the doctor
- O My family believes in faith based healing
- O I don't feel the information I share is confidential
- O Other reasons

58. Who do you go to for regular physical examinations or health check-ups? Mark one answer.

- O I don't get regular examinations
- O A family planning clinic
- O A community health care clinic
- O A nurse O A doctor O Other

59. When was your last physical examination or health check-up?

- O I have never had a physical examination
- O Within the last 6 months
- O Over 6 months but less than a year ago
- O Over a year ago
- O I don't remember

60592

60. How much do you think people risk harming themselves (physically or in other ways) if they:

	No Risk	Slight Risk	Moderate Risk	Great Risk
a. smoke one or more packs of cigarettes per day?	O	O	O	O
b. try marijuana once or twice?	O	O	O	O
c. smoke marijuana regularly?	O	O	O	O
d. use inhalants (sniff glue or inhale gases or sprays)?	O	O	O	O
e. take one or two drinks of an alcoholic beverage (beer, wine, liquor) nearly every day?	O	O	O	O

61. If you have a friend that you believe needs help because they have a problem with alcohol, drugs, or sniffing glue or inhaling gases or sprays, do you know where you could suggest they go for help? Choose all that apply.

- O I don't know
- O Yes, I know a teacher who would help
- O Yes, I know a person in my community who would help
- O Yes, I know an organization, agency, or clinic in my community that would help
- O I would probably talk to my parent about it

The next section asks your experience with tobacco, alcohol, and other drugs. Remember, your answers are confidential.

On how many occasions (if any) have you:	OCCASIONS 0	1 - 2	3 - 5	6 - 9	10-19	20-39	40+
62. had alcoholic beverages (beer, wine or hard liquor) to drink in your lifetime -- more than just a few sips?	O	O	O	O	O	O	O
63. had beer, wine or hard liquor to drink during the past 30 days?	O	O	O	O	O	O	O
64. used marijuana in your lifetime?	O	O	O	O	O	O	O
65. used marijuana during the past 30 days?	O	O	O	O	O	O	O
66. used LSD or other psychedelics in your lifetime?	O	O	O	O	O	O	O
67. used LSD or other psychedelics during the past 30 days?	O	O	O	O	O	O	O
68. used cocaine or crack in your lifetime?	O	O	O	O	O	O	O
69. used cocaine or crack during the past 30 days?	O	O	O	O	O	O	O
70. sniffed glue, breathed the contents of an aerosol spray can, or inhaled other gases or sprays, in order to get high in your lifetime?	O	O	O	O	O	O	O
71. sniffed glue, breathed the contents of an aerosol spray can, or inhaled other gases or sprays, in order to get high during the past 30 days?	O	O	O	O	O	O	O
72. used derbisol in your lifetime?	O	O	O	O	O	O	O
73. used derbisol during the past 30 days?	O	O	O	O	O	O	O
74. used stimulants ("amphetamines", "meth", "crystal", "crank") without a doctor telling you to take them, in your lifetime?	O	O	O	O	O	O	O
75. used stimulants ("amphetamines", "meth", "crystal", "crank") without a doctor telling you to take them, during the past 30 days?	O	O	O	O	O	O	O
76. used sedatives (tranquilizers, such as valium or xanax, barbituates, or sleeping pills) without a doctor telling you to take them, in your lifetime?	O	O	O	O	O	O	O
77. used sedatives (tranquilizers, such as valium or xanax, barbituates, or sleeping pills) without a doctor telling you to take them, during the past 30 days?	O	O	O	O	O	O	O
78. used heroin or other opiates in your lifetime?	O	O	O	O	O	O	O
79. used heroin or other opiates during the past 30 days?	O	O	O	O	O	O	O

80. Have you ever used smokeless tobacco (chew, snuff, plug, dipping tobacco, chewing tobacco)?

- O Never
- O Once or twice
- O Once in a while but not regularly
- O Regularly in the past
- O Regularly now

81. How frequently have you used smokeless tobacco during the **past 30 days**?

- O Never
- O Once or twice
- O Once or twice per week
- O About once a day
- O More than once a day

82. Have you ever smoked cigarettes?

- O Never
- O Once or twice
- O Once in a while but not regularly
- O Regularly in the past
- O Regularly now

83. How frequently have you smoked cigarettes during the **past 30 days**?

- O Not at all
- O Less than one cigarette per day
- O One to five cigarettes per day
- O About one-half pack per day
- O About one pack per day
- O About one and one-half packs per day
- O Two packs or more per day

84. Think back over the **last two weeks**. How many times have you had five or more alcoholic drinks in a row?

- O None
- O Once
- O Twice
- O 3-5 times
- O 6-9 times
- O 10 or more times

These questions ask about the neighborhood and community where you live.

	NO!	no	yes	YES!
85. If a kid smoked marijuana in your neighborhood would he or she be caught by the police?	O	O	O	O
86. If a kid drank some beer, wine or hard liquor (for example, vodka, whiskey, or gin) in your neighborhood would he or she be caught by the police?	O	O	O	O
87. If a kid carried a handgun in your neighborhood would he or she be caught by the police?	O	O	O	O

	Very Hard	Sort of Hard	Sort of Easy	Very Easy
88. If you wanted to get some cigarettes, how easy would it be for you to get some?	O	O	O	O
89. If you wanted to get some beer, wine or hard liquor (for example, vodka, whiskey, or gin), how easy would it be for you to get some?	O	O	O	O
90. If you wanted to get a drug like cocaine, LSD, or amphetamines, how easy would it be for you to get some?	O	O	O	O
91. If you wanted to get a handgun, how easy would it be for you to get one?	O	O	O	O
92. If you wanted to get some marijuana, how easy would it be for you to get some?	O	O	O	O

93. About how many adults have you known personally who in the past year have:	Number of Adults 0	1	2	3-4	5 +
a. used marijuana, crack, cocaine, or other drugs?	O	O	O	O	O
b. used inhalants (sniffed glue or inhaled gases or sprays)?	O	O	O	O	O
c. sold or dealt drugs?	O	O	O	O	O
d. done other things that could get them in trouble with the police, like stealing, selling stolen goods, mugging or assaulting others, etc?	O	O	O	O	O
e. gotten drunk or high?	O	O	O	O	O

94. At school during the past 12 months, did you receive help from the resource teacher, speech therapist or other special education teacher?

O No O Yes

95. How wrong would most adults in your neighborhood think it is for kids your age:

	Very Wrong	Wrong	A Little Bit Wrong	Not Wrong at All
a. to use marijuana?	O	O	O	O
b. to drink alcohol?	O	O	O	O
c. to smoke cigarettes?	O	O	O	O

	NO!	no	yes	YES!
96. If I had to move, I would miss the neighborhood I now live in.	O	O	O	O
97. My neighbors notice when I am doing a good job and let me know about it.	O	O	O	O
98. I like my neighborhood.	O	O	O	O
99. There are lots of adults in my neighborhood I could talk to about something important.	O	O	O	O
100. People move in and out of my neighborhood a lot.	O	O	O	O
101. I'd like to get out of my neighborhood.	O	O	O	O
102. There are people in my neighborhood who are proud of me when I do something well.	O	O	O	O
103. There are people in my neighborhood who encourage me to do my best.	O	O	O	O
104. I feel safe in my neighborhood.	O	O	O	O

105. How many times have you changed homes since kindergarten?

O Never O 3 or 4 times O 7 or more times
O 1 or 2 times O 5 or 6 times

106. Have you changed homes in the past year (the last 12 months)?

O No O Yes

107. Which of the following activities for people your age are available in your community?

a. sports teams O No O Yes
b. scouting O No O Yes
c. boys and girls clubs O No O Yes
d. 4-H clubs O No O Yes
e. service clubs O No O Yes

108. How much do each of the following statements describe your neighborhood?

	NO!	no	yes	YES!
a. crime and/or drug selling	O	O	O	O
b. fights	O	O	O	O
c. lots of empty or abandoned buildings	O	O	O	O
d. lots of graffiti	O	O	O	O

109. Have you changed schools in the past year?

O No O Yes

110. How many times have you changed schools since kindergarten?

O Never O 3 or 4 times O 7 or more times
O 1 or 2 times O 5 or 6 times

The next few questions ask about your family.

111. How wrong do your parents feel it would be for you to:

	Very Wrong	Wrong	A Little Bit Wrong	Not Wrong at All
a. drink beer, wine or hard liquor (for example, vodka, whiskey or gin) regularly?	O	O	O	O
b. smoke cigarettes?	O	O	O	O
c. smoke marijuana?	O	O	O	O
d. use inhalants (sniff glue or inhale gases or sprays)?	O	O	O	O
e. steal something worth more than $5?	O	O	O	O
f. draw graffiti, or write things or draw pictures on buildings or other property (without the owner's permission)?	O	O	O	O
g. pick a fight with someone?	O	O	O	O

112. How many brothers and sisters, including stepbrothers and stepsisters, do you have that are younger than you?

O 0 O 1 O 2 O 3 O 4 O 5 O 6 or more

113. How many brothers and sisters, including stepbrothers and stepsisters, do you have that are older than you?

O 0 O 1 O 2 O 3 O 4 O 5 O 6 or more

60592

114. Have any of your brothers or sisters ever:	I don't have any brothers or sisters	No	Yes
a. drunk beer, wine or hard liquor (for example, vodka, whiskey or gin)?		O	O
b. smoked marijuana?		O	O
c. used inhalants (sniffed glue or inhaled gases or sprays)?		O	O
d. smoked cigarettes?		O	O
e. taken a handgun to school?		O	O
f. been suspended or expelled from school?		O	O

	NO!	no	yes	YES!
115. The rules in my family are clear.	O	O	O	O
116. People in my family often insult or yell at each other.	O	O	O	O
117. When I am not at home, one of my parents knows where I am and who I am with.	O	O	O	O
118. We argue about the same things in my family over and over.	O	O	O	O
119. My parents want me to call if I'm going to be late getting home.	O	O	O	O
120. If you drank some beer or wine or liquor (for example, vodka, whiskey, or gin) without your parents' permission, would you be caught by your parents?	O	O	O	O
121. My family has clear rules about alcohol and drug use.	O	O	O	O
122. If you carried a handgun without your parents' permission, would you be caught by your parents?	O	O	O	O
123. If you skipped school would you be caught by your parents?	O	O	O	O
124. Do you feel very close to your mother?	O	O	O	O
125. Do you share your thoughts and feelings with your mother?	O	O	O	O
126. My parents ask me what I think before most family decisions affecting me are made.	O	O	O	O
127. Do you share your thoughts and feelings with your father?	O	O	O	O

	NO!	no	yes	YES!
128. Do you enjoy spending time with your mother?	O	O	O	O
129. Do you enjoy spending time with your father?	O	O	O	O
130. If I had a personal problem, I could ask my mom or dad for help.	O	O	O	O
131. Do you feel very close to your father?	O	O	O	O
132. My parents give me lots of chances to do fun things with them.	O	O	O	O
133. My parents ask if I've gotten my homework done.	O	O	O	O
134. People in my family have serious arguments.	O	O	O	O
135. Would your parents know if you did not come home on time?	O	O	O	O
136. It is important to be honest with your parents, even if they become upset or you get punished.	O	O	O	O

137. Has anyone in your family ever had a severe alcohol or drug problem?
O No O Yes

138. My parents notice when I am doing a good job and let me know about it.
O Never or Almost Never
O Sometimes
O Often
O All the Time

139. How often do your parents tell you they're proud of you?
O Never or Almost Never
O Sometimes
O Often
O All the Time

140. How important were these questions?
O Not too important
O Fairly important
O Important
O Very important

141. How honest were you in filling out this survey?
O I was very honest
O I was honest pretty much of the time
O I was honest some of the time
O I was honest once in a while
O I was not honest at all

APPENDIX II

OPERATIONALIZATIONS

Operationalizations

The questions used from the Montana Prevention Needs Assessment Survey to operationalize the variables used in the data analysis are reported verbatim.

Dependent variable[1]

Lifetime Reported Use is measured as:

On how many occasions (if any) have you:
q 62: had alcoholic beverages (beer, wine, or hard liquor) to drink in your lifetime --more than just a few sips?
q64: used marijuana in your lifetime?
q66: used LSD or other psychedelics in your lifetime?
q68: used cocaine or crack in your lifetime?
q70: sniffed glue, breathed the contents of an aerosol spray can, or iinhaled other gases or sprays, in order to get high in your lifetime?
q74: used stimulants ("amphetamines", "meth", "crystal", "crank") without a doctor telling you to take them in your lifetime?
q76: used sedatives (tranquilizers, such as valium or xanax, barbituates, or sleeping pills) without a doctor telling you to take them in your lifetime?
q78: used heroin or other opiates in your lifetime?

These questions are coded: 1: 0, 2: 1-2, 3: 3-5, 4: 6-9, 5: 10-19, 6: 20-39, 7: 40+.

q80: Have you ever used smokeless tobacco (chew, snuff, plug, dipping tobacco, chewing tobacco)?
q82: Have you ever smoked cigarettes?

These questions are labeled: 1: never, 2: once or twice, 3: once in a while, but not regularly, 4: regularly in the past, 5: regularly now.

The alpha value for the scale created is: α .8160.

[1] All Alpha levels reported are unstandardized measures.

The score assigned to the respondent was the sum of their recorded scores.

Independent Variables

D.A.R.E. Model

Personal safety is measured as:
q108: How much do each of these statements describe your neighborhood?

a. crime and/or drug selling
b. fights
c. lots of empty or abandoned buildings
d. lots of graffiti

These questions are coded: 1: definitely not true, 2: mostly not true, 3: mostly true, 4: definitely true.

The alpha value for the scale created is : α .8067.

Harmful Effects Is measured as:
q60: How much do you think people risk harming themselves (physically or in other ways) if they:

a. smoke one or more packs of cigarettes a day?
b. try marijuana once or twice?
c. smoke marijuana regularly?
d. use inhalants (sniff glue or inhale gases or sprays)?
e. Take one or two drinks of an alcoholic beverage?

These questions are coded: 1: great risk, 2: moderate risk, 3: slight risk, 4: no risk.

The alpha value for the scale created is α .7563.

Consequences Associated with Use is measured as:
q30: How wrong do you think it is for someone your age to:

f. drink beer, wine or hard liquor (for example, vodka, whiskey or gin) regularly?
g. smoke cigarettes?
h. smoke marijuana?
i. use inhalants (sniff glue or inhale gases or sprays)?
j. use LSD, cocaine, amphetamines or another illegal drug?

q95: How wrong would most adults in your neighborhood think it is for kids your age:

a. to use marijuana?
b. to drink alcohol?

c. to smoke cigarettes?

These questions are coded: 1: very wrong, 2: wrong, 3: a little bit wrong, 4: not wrong at all.

The alpha value for the scale created is: α .8377.

The score assigned to the respondent was the sum of their recorded scores.

Peer Pressure is measured as:
q28: What are the chances that you would be seen as cool if you:

a. smoked cigarettes?
b. began drinking alcoholic beverages regularly, that is, at least once or twice a month?
c. smoked marijuana?

The questions are coded: 1: no or very little chance, 2: little chance, 3: some chance, 4: pretty good chance, 5: very good chance.

The alpha value for the scale created is: α .8304.

Self Esteem is measured as:
q14: My teacher(s) notices when I am doing a good job and lets me know about it.
q16: There are lots of chances for students in my school to talk with teachers one on one.
q18: The school lets my parents know when I have done something well.
q19: My teachers praise me when I work hard.
q21: I have lots of chances to be part of class discussion or activities.

These questions are coded: 1: definitely not true, 2: mostly not true, 3: mostly true, 4: definitely true.

The alpha value for the scale created is: α .7308.

The score assigned to the respondent was the sum of their recorded scores.

Assertiveness is measured as:
q38: You are looking at CD's in a music store with a friend. You look up and see her slip a CD under her coat. She smiles and say's "Which one do you want? Go ahead, take it while nobody's around." There is no one in sight, no employees and no customers. What would you do know?

This question is coded: 1: Ignore her, 2: grab a CD and leave the store, 3: tell her to put the CD back, 4: act like it was a joke, and ask her to put the CD back.

q40: You are at a party at someone's house, and one of your friends offers you a drink containing alcohol. What would you say or do?

This question is coded: 1: drink it, 2: tell your friend "No thanks, I don't drink" and suggest that you and your friend go and do something else, 3: make up a good excuse, tell your friends you had something to, and leave.

The alpha value for the scale created is: α .3984.

The score assigned to the respondent was the sum of their recorded scores.

Stress is measured as:
q118: We argue about the same things in my family over and over.
q134: People in my family have serious arguments.

The questions are coded: 1: definitely not true, 2: mostly not true, 3: mostly true, 4: definitely true.

The alpha value for the scale created is: α .6669.

The score assigned to the respondent was the sum of their recorded scores.

Ability to Make Mature Decisions is measured as:
q31: How many times have you done the following things?

a. done what feels good no matter what?
b. done something dangerous because someone dared you to do it?
c. done crazy things even if they are a little dangerous?

The question is coded: 1: never, 2: I've done it, but not in the past year, 3: less than once a month, 4: about once a month, 5: 2 or 3 times a month, 6: once a week or more.

The alpha value for the scale created is: α .7312.

Alternatives is measured as:
Q107: Which of the following activities for people your age are available in your community?

a. sports teams
b. scouting
c. boys and girls clubs
d. 4-H clubs
e. service clubs

The question is coded: 1: no, 2: yes.

The alpha value for the scale created is: α .7439.

Positive Role Model is measured as:
Q124: Do you feel very close to your mother?
Q125: Do you share thoughts and feelings with your mother?
Q127: Do you share your thoughts and feelings with your father?
Q131: Do you feel very close to your father?

The questions are coded: 1: definitely not true, 2: mostly not true, 3: mostly true, 4: definitely true.

The alpha value for the scale created is: α .7578.

The score assigned to the respondent was the sum of their recorded scores.

Support Network is measured as:
Q99: There are a lot of adults in my neighborhood I could talk to about something important.
Q102: There are people in my neighborhood who are proud of me when I do something well.
Q103: There are people in my neighborhood who encourage me to do my best.
Q130: If I had a personal problem, I could ask mom or dad for help.

The questions are coded: 1: definitely not true, 2: mostly not true, 3: mostly true, 4: definitely true.

The alpha value for the scale that was created is: α .7692.

The score assigned to the respondent was the sum of their recorded scores.

Diffusion of Innovations Model

Relative Advantage is measured as:
q28: What are the chances you would be seen as cool if you:

a. smoked cigarettes?
b. began drinking alcoholic beverages regularly, that is at least once or twice a month?
c. smoked marijuana?

This question is coded: 1- no or very little chance, 2- little chance, 3- some chance, 4- pretty good chance, 5- very good chance.

q30: How wrong do you think it is for someone your age to:

f. drink beer, wine or hard liquor (for example, vodka, whiskey or gin regularly?
g. smoke cigarettes?

h. smoke marijuana?
i. use inhalants (sniff glue or inhale gases or sprays)?
j. use LSD, cocaine, amphetamines or other illegal drug?

This question is coded: 1- very wrong, 2- wrong, 3- a little bit wrong, 4- not wrong at all.

The alpha value for the scale created is: α .8281

The score assigned to the respondent was the sum of their recorded scores.

Compatibility is measured as:
q93: About how many adults have you known personally who in the past year have:

a. used marijuana, crack, cocaine, or other drugs?
b. use inhalants (sniff glue or inhale gases or sprays)?
c. sold or dealt drugs?
e. gotten drunk or high?

This question is coded: 1- 0, 2- 1, 3- 2, 4- 3-4, 5- 5+.

q95: How wrong would most adults in your neighborhood think it is for kids your age to:

a. to use marijuana?
b. To drink alcohol?
c. To smoke cigarettes?

q111: How wrong do you parents feel it would be for you to:

a. drink beer, wine or hard liquor (for example, vodka, whiskey or gin regularly?
b. smoke cigarettes?
c. smoke marijuana?
d. use inhalants (sniff glue or inhale gases or sprays)?

These questions are coded: 1- very wrong, 2- wrong, 3- a little bit wrong, 4- not wrong at all.

The alpha value for the scale created is: α .8307.

The score assigned to the respondent was the sum of their recorded scores.

Complexity is measured as:
q88: If you wanted to get some cigarettes, how easy would it be for you to get some?
q89: If you wanted to get some beer, wine or hard liquor (for example, vodka, whiskey or gin), how easy would it be for you to get some?

q90: If you wanted to get a drug like cocaine, LSD. Or amphetamines, how easy would it be for you to get some.
q92: If you wanted to get some marijuana, how easy would it be for you to get some?

The questions are coded: 1- very easy, 2- sort of easy, 3- sort of hard, 4- very hard.

The alpha value for the scale created is: α .8209.

The score assigned to the respondent was the sum of their recorded scores.

Trialability is measured as:
q31: How many times have you done the following things?

a. done what feels good no matter what.
b. done something dangerous because someone dared you to do it.
c. done crazy things even if they are a little dangerous.

The question is coded: 1- never, 2- I've done it, but not in the past year, 3- less than once a month, 4- about once a month, 5- 2 or 3 times a month, 6- once a week or more.

The alpha value for the scale created is: α .7312.

Observability is measured as:
q28: What are the chances you would be seen as cool if you:

a. smoked cigarettes?
d. began drinking alcoholic beverages regularly, that is at least once or twice a month?
e. smoked marijuana?

This question is coded: 1- very good chance, 2- pretty good chance, 3- some chance, 4- little chance, 5- little chance, 6- no or very little chance.

q114: Have any of your brothers or sisters ever:

a. drunk beer, wine or hard liquor (for example, vodka, whiskey or gin)?
b. smoked marijuana?
c. used inhalants (sniffed glue or inhaled gases or sprays)?
d. smoked cigarettes?

This question is coded: 1- no, 2- yes, 3- I don't have brothers or sisters.

The alpha value for the scale created is: α .7166.

The score assigned to the respondent was the sum of their recorded scores.

Risk Factors Model

Perceived Peer Acceptance of Use is measured as:
q27: Think of your four best friends (the friends that you feel closest to). In the past year (12 months), how many of your best friends have....

a. smoked cigarettes?
b. tried beer, wine or hard liquor (for example, vodka, whiskey, or gin) when their parents didn't know about it?
c. used marijuana?
d. used inhalants (sniffed glue or inhaled gases or sprays)?
e. used LSD, cocaine, amphetamines, or other illegal drugs?

This question is coded: 0- 0, 1- 1, 2- 2, 3- 3, 4- 4.

q28: What are the chances you would be seen as cool if you:

a. smoked cigarettes?
b. began drinking alcoholic beverages regularly, that is, at least once or twice a month?
c. smoked marijuana?

This question is coded: 1- no or very little chance, 2- little chance, 3- some chance, 4- pretty good chance, 5- very good chance.

The alpha value for the scale created is α ..8272.

The score assigned to the respondent was the sum of their recorded scores.

School Enjoyment is measured as:
q20: Are your grades better than the grades of most students in your class?
q21: I have lots of chances to be part of class discussions or activities.

These questions are coded: 1- definitely true, 2- mostly true, 3- mostly not true, 4- definitely not true.

q22: Now thinking back over the past year in school, how often did you:

d. try to do your best work I school?

This question is coded: 1- almost always, 2- often, 3- sometimes, 4- seldom, 5- never.

The alpha value for the scale created is α .5290.

The score assigned to the respondent was the sum of their recorded scores.

Lack of Social Conformity is measured as:
Q32: How many times in the past year (12 months) have you:

a. been suspended from school?
b. carried a handgun?
c. sold illegal drugs?
d. stolen or tried to steal a motor vehicle such as a car or motorcycle?
e. been arrested?
f. attacked someone with the idea of hurting them?

This question is coded: 1- never, 2- 1 to 2 times, 3- 3 to 5 times, 4- 6 to 9 times, 5- 10 to 19 times, 6- 20 to 29 times, 7- 30 to 39 times, 8- 40+ times.

The alpha value for the scale created is α .7171.

Psychopathology is measured as:
q49: Sometimes I think that life is not worth it.
q50: At times I think that I am no good at all.
q51: All in all, I am inclined to think that I am a failure.
q52: In the past year have you felt depressed or sad most days, even if you felt OK sometimes?

These questions are coded: 1- definitely true, 2- mostly true, 3- mostly not true, 4- definitely not true.

The alpha level for the scale created is α .8474.

The score assigned to the respondent was the sum of their recorded scores.

Perceptions of Adult Use is measured as:
q93: About how many adults have you known personally who in the past year have:

a. used marijuana, crack, cocaine or other drugs?
b. used inhalants (sniffed glue or inhaled gases or sprays)?
c. sold or dealt drugs?
d. gotten drunk or high?

This question is coded: 1- 0, 2- 1, 3- 2, 4- 3-4, 5- 5+.

The alpha level for the scale created is α .7813.

Sibling Use is measured as:
q114: Have any of your brothers or sisters ever:

a. drunk beer, wine or hard liquor (for example, vodka, whiskey or gin)?
b. smoked marijuana?
c. used inhalants (sniffed glue or inhaled gases or sprays)?
d. smoked cigarettes?

This question is coded: 1- no, 2- yes, 3- I don't have brothers or sisters.

The alpha value for the scale created is α .8619

G.P.A. is measured as:
q24: Putting them all together, what were your grades like last year?

The question is coded: 1- mostly F's, 2- mostly D's, 3- mostly C's, 4- mostly B's, 5- mostly A's.

Religiosity is measured as:
q41: How often do you attend religious or spiritual services or activities?

The question is coded: 1- never, 2- rarely, 3- 1-2 times a month, 4- about once a week.

Appendix III

Inter-Item Correlation Matrices

Table 4. Inter-Item Correlation Matrix D.A.R.E. Model

	1 Personal safety	2 Harmful Effects	3 Consequence Associated with Use	4 Peer Pressure	5 Self Esteem	6 Assertiveness	7 Stress	8 Ability to Make Mature Decisions	9 Alternatives	10 Positive Role Model	11 Support Network
1	X=5.900										
	S= 2.313										
2	-.201	X= 15.512									
	.000	S= 3.092									
3	.275	.634	X=19.631								
	.000	.000	S.= 4.288								
4	.167	-.282	-.384	X= 6.316							
	.000	.000	.000	S= 3.208							
5	-.134	.288	.309	-.160	X= 15.971						
	.000	.000	.000	.000	S= 3.056						
6	-.137	.440	.522	-.252	.235	X= 4.38					
	.000	.000	.000	.000	.000	S= 1.714					
7	.200	-.173	-.227	.179	-.173	-.157	X= 4.514				
	.000	.000	.000	.000	.000	.000	S= 1.557				
8	-.185	.392	.419	-.253	.230	.337	-.211	X= 11.882			
	.000	.000	.000	.000	.000	.000	.000	S= 4.017			
9	-.157	.118	.096	-.050	.157	.076	-.047	.042	X= 8.850		
	.000	.000	.000	.000	.000	.000	.000	.000	S= 1.436		
10	-.176	.256	.274	-.151	.300	.218	-.349	.188	.103	X= 11.670	
	.000	.000	.000	.000	.000	.000	.000	.000	.000	S= 2.953	
11	-.129	.263	.290	-.151	.391	.221	-.237	.174	.119	.477	X= 9.930
	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	S= 2.100

Table 5. Inter-Item Correlation Matrix Diffusion of Innovations Model

	Relative Advantage 1	Compatibility 2	Complexity 3	Trialability 4	Observability 5
1	$\bar{X}$= 15.305				
	S= 5.793				
2	.551	$\bar{X}$= 18.810			
	.000	S= 6.757			
3	.468	.488	$\bar{X}$= 11.104		
	.000	.000	S= 3.379		
4	.399	.353	.280	$\bar{X}$= 7.080	
	.000	.000	.000	S= 3.150	
5	-.732	-.219	-.262	-.195	$\bar{X}$= 14.667
	.000	.000	.000	.000	S= 3.204

Table 6. Inter-Item Coorelation Matrix for the Risk factors Model

	1 Perceived Peer Acceptance of Use	2 School Enjoyment	3 Lack of Social Conformity	4 Psychopathology	5 Perceptions of Adult Use	6 Sibling Use	7 G.P.A.	8 Religiosity
1	$\bar{X}$= 12.980 S= 7.256							
2	.329 .000	$\bar{X}$= 8.601 S= 2.378						
3	.492 .000	.274 .000	$\bar{X}$= 3.081 S= 2.652					
4	.250 .000	.285 .000	.092 .000	$\bar{X}$= 8.130 S= 3.155				
5	.551 .000	.263 .000	.495 .000	.213 .000	$\bar{X}$= 8.196 S= 4.124			
6	.312 .000	.129 .000	.207 .000	.121 .000	.304 .000	$\bar{X}$= 5.931 S= 1.778		
7	-.284 .000	-.297 .000	-.282 .000	-.216 .000	-.274 .000	-.141 .000	$\bar{X}$= 3.92 S= .97	
8	-.221 .000	-.195 .000	-.189 .000	-.106 .000	-.235 .000	-.179 .000	.219 .000	$\bar{X}$= 2.61 S= 1.15