

AN ABSTRACT OF THE THESIS OF

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Existing research on the efficacy drug education programs with adolescents has taken many forms. Long and short term research on drug education has yielded mixed results. The present study was done as a means of assessing the durability of any gains in influencing healthier attitudes toward drug use as a result of drug education.

The sample population was comprised of 90 sixth grade students completing one of three drug education programs, and tested again as seventh graders. This sample was divided between males and females, with 48 and 42 subjects respectively. Instrumentation utilized was the Substance Abuse Survey. The scores were compared between genders and also over time between testing sessions.

Analysis of the data indicated a significant interaction effect between gender and time ($p \leq .05$). Males in this study developed increasingly undesirable attitudes over time to a greater extent than did their female

counterparts.

Conclusions formed from this study suggest that some widely used drug education programs do not contribute to healthier attitudes in adolescents toward drug/alcohol use over long periods of time. A suggestion for future research is the assessment of drug education programs for students at earlier ages. Additionally, research on more intrusive methods of influencing attitudes toward drug use than the 16 hourly sessions provided by those programs under study should be attempted.

DRUG EDUCATION IN EARLY ADOLESCENCE

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CHAPTER I

INTRODUCTION

As many discover through experience, planning ahead can be vital to success. This concept is especially important as it applies to the youth of our nation, as they are the future. By taking the necessary steps now to aid children in making the best decisions for themselves, it becomes possible to guide them toward fulfillment of their potentials, and thus strengthens their opportunities for future success. One of the greatest impediments to today's youth in achieving that which they should is drug use.

Drug use has been linked to a number of difficulties experienced by those who use them, ranging from poor academic achievement to death (Kinkel, Bailey, & Josef, 1986). Drugs reportedly consumed by children today include such substances as tobacco, alcohol (Elder, Stern, Anderson, Hovell, Molgaard, & Seidman, 1987), marijuana, cocaine, hallucinogens, inhalants, and tranquilizers (Segal, 1991). Drugs are currently being used by children beginning at younger ages in increasing numbers (Kovach & Glickman, 1986).

In a study conducted by Needle, Su, and Lavee (1989), the incidence of drug use among adolescents ranged from 73% to 86%. Figures such as these have alarmed

parents, teachers, businesses, and researchers to seek solutions to this problem.

The initial stage of this problem solving process involves determination of whether or not a problem exists, and if so, to what extent. Next, it is important to identify those factors which leave children more susceptible to the pressures leading to drug use. Subsequent steps undertaken usually include education regarding the harmful nature of drugs and pressures to use drugs, and development of interpersonal skills necessary to deal effectively with those pressures. Exercises to enhance self-esteem are also included in intervention programs (U.S. Department of Justice, 1988). Next, assessment of the effectiveness of these programs is implemented (DeJong, 1987), and in some cases, evaluation of long-term effects for those students who have completed the drug education program are conducted (Duryea & Okwumabua, 1988). Studies evaluating interventions, long and short-term, have yielded mixed results.

As many researchers have shown, consistent influences for drug-using behavior exist in the life of an adolescent in the forms of parents (Climent, DeAragon, & Plutchik, 1989; Coombes, Paulson, & Richardson, 1991; Gfroerer, 1987; Grichting & Barber, 1989; Kovach & Glickman, 1986; Stoker & Swadi, 1990) and peers (Coombes et al.,

1991). It is difficult to implement a drug program influential enough among adolescents to produce long-term positive effects. Because of the importance of preventing drug use, and the need for applying funds and time to those programs which will be effective now and in the future long-term evaluation is the focus of this study. This study evaluated the longitudinal effects of three drug intervention training programs regarding attitudes toward substance abuse.

Review of the Literature

Research has repeatedly demonstrated the harmful effects of drugs on the lives of those who use them, particularly children and adolescents. As indicated earlier, today's youth may use any of a wide variety of drugs. Not only are there many drugs from which to choose, but many of those drugs are more potent than in previous times (Morrison, Hayes, & Knauf, 1989). For example, cocaine on the market today is purer than that produced ten years ago, and marijuana has a tetrahydrocannabinol (THC) level 10 to 20 times that of ten years ago. The increased potency of drugs coupled with a quicker paced addiction process in adolescents (as compared to adults) increases risk for youngsters.

In a study of students self-reporting drug use, many difficulties were cited in both the academic and personal lives of these individuals (Friedman, Utada, Glickman,

& Morissey, 1987). Academic areas found to be problematic for these subjects included difficulty with relationships with school personnel, disrupting class, failure to complete schoolwork, and quitting school. Factors affecting them on a personal level included poor peer relationships, emotional disturbance and running away from home. Friedman et al. clearly demonstrated impaired coping abilities in individuals participating in substance use. This was evidenced in diminished abilities to relate adequately to other people and to attend to responsibilities.

Kleinman, Wish, Deren, Rainone, and Morehouse (1988), reported results similar to those noted by Friedman, et al. (1987). In addition to describing problems associated with drug use, delinquency was also discussed. Frequent drug use and polydrug use coincided with the strongest negative consequences.

Inciardi and Pottieger (1991) also noted a strong relationship between drug use and crime involvement in adolescents, ranging from various misdemeanors to major felonies. This relationship was further strengthened in those delinquents involved in both drug use and drug sales, particularly in the case of crack cocaine.

Another danger for adolescents using drugs is suicide. During adolescence, individuals may find themselves vulnerable to a number of situations and resort to suicide

as a way out. According to one study (Kinkel, et al., 1986), youth between 14 and 16 years of age proved to be at high risk for suicide attempts. These researchers found a strong relationship between attempted suicide and alcohol and marijuana use in females. This same relationship, not found for males, may be due to chemical differences between the two genders, better enabling males to metabolize those substances. An alternate explanation not offered by these researchers was the possibility males succeeding in their suicide attempts prior to implementation of this study were not included. As this study relied on the self-reports of those who had attempted suicide within the last year, no information on those who had attempted prior to one year, or on those who succeeded, was included, possibly leaving out a great deal of information.

While considering the many perils connected with substance use, it is especially worrisome to note that drug use is on the rise in our youth. Various news sources reporting this rise have noted an increase in age appears to pose an additional risk factor for children and adolescents. Fagan and Chin (1991) reported that with most types of substances a user undergoes a type of socialization into using that particular type of substance. Youth seldom initiate drug use on their own, but begin experimenting with friends. Many are taught the best

way to achieve certain conditions (level of intoxication without overdose) through drug use by those more experienced in using a certain type of drug.

Major increases in first use of various substances seems to increase greatly after age 12, most often occurring between 13 and 16 years of age (Segal, 1991). Little resistance to substance use by those waiting longer to try them has been found.

Data have indicated youth begin using different types of drugs in stages: first alcohol, followed by marijuana, then on to harder drugs. For younger students, especially females, cigarettes are often first used between alcohol and marijuana (DeMoor, Elder, Young, Wildey, & Molgaard, 1989).

Substance use in the DeMoor, et al. (1989) study was identified by self-reports. Many of the studies cited have relied heavily on self-reports of subjects. Because a great deal of research investigating substance abuse is dependent upon self-reports, researchers have recognized the importance of determining the accuracy of this means of gathering information (Pedersen, 1990; Martin & Newman, 1988). Varied techniques including listing a fictitious drug as a choice to which subjects can respond, comparing responses, and using verifiable information (such as public records) have been used to determine the accuracy of self-report instruments. Researchers have also monitored

the consistency of responses between items on a given scale and compared answers to certain scales over periods of time.

Reasons cited for dishonest answers include overreporting drug use so as not to appear to be lacking in sophistication in comparison to peers and underreporting due to fear of reprisals from adults. Researchers have attempted to address these issues through guaranteeing anonymity of respondents. It is also suggested some apparent errors made in answering questions are not committed on purpose. Inconsistency of responses may be attributed to unintentional errors, memory loss, and change in drug use practices. Though consistency of self-report responses decreases with time (Pedersen, 1990), research supports the validity of their use (Pedersen 1990; Martin & Newman, 1988). Those tests administered at least once more after the initial inquiry were deemed more valid than single session results.

Self-reports have also been relied upon to obtain information on reasons why youngsters choose to use drugs (Kovach & Glickman, 1986). Reasons for drug use included: wishing to get high, to feel better, to get into music and other things, because of use by friends, to reduce tension or anxiety, for fun, and to satisfy curiosity.

White, Johnson, and Horwitz (1986) drew on three theories of deviance in seeking explanations for drug

use among adolescents: differential association, control, and strain. White et al. described the differential association theory as postulated by Sutherland in 1947 as an explanation accounting for deviance. This is said to occur when the values of a group of individuals differ from those of a group possessing more power which is able to translate its values into law, thereby making those not part of the more powerful group identified as deviant. These individuals may become frustrated to the point of pushing further against the bounds set by the more powerful group conflicting with those of their "reference group".

Hirschi's control theory (1969), as cited in White et al. (1986), proposed deviance occurs as a result of youth who "lack sufficient ties to conventional social groups . . ." (p. 348). Families, schools and churches were cited as important groups. Subjects in the White et al. study typically reported friends' use of substances and/or attitudes toward use as among the more influential factors contributing to their own use.

The final theory addressed by White et al. (1986) was strain theory. Strain theory maintains that deviance occurs when society fails to meet the basic needs of its people.

All three of the deviance theories applied in the White, Johnson and Horowitz (1986) study were found to have some merit, with differential association theory

showing the strongest relationship with the dependent variables. The data in this study suggested differential association theory has a strong influence over the age of first use and frequency and quantity of use. Age was also found to be a strong factor in deviance.

Much support for the importance of the role of family and friends in drug use has also been found in additional research (Dielman, Campanelli, Shope, & Butchart, 1987; Lopez, Redondo, & Martin, 1989; Kovach & Glickman, 1986; Climent, DeAragon, & Plutchik, 1989). In the Lopez et al. (1989) study, substance use was clearly related to certain characteristics of the subjects' families. Those reporting drug use indicated they had poor relationships with family members, more conflict at home, and a higher rate of consumption of various substances (except marijuana) by parents. Subjects self-reporting drug use indicated they had stronger relationships with peers who consumed drugs, stronger identification with "unconventional" groups, and a stronger preference of "unconventional" activities. Subjects reporting no drug use indicated stronger attachments to parents than peers, while the opposite was true for those claiming drug use. In working with children in the area of drug prevention it is important to identify those factors which place children at greater risk. Some of these risk indicators include: poor academic achievement; lack of involvement

in some form of religion; psychopathology; personal and interpersonal difficulties; deviance (e.g. higher incidence of legal problems); sensation seeking; early alcohol use; low self-esteem; poor relationships with parents; perceived peer drug use; and perceived adult drug use.

Once these risk factors have been correctly identified, they can be incorporated into drug education programs. There is no guarantee, however, that prevention programs will work. It has been suggested many programs which fail to work because many of the conditions with which these youth live are not subject to change (Climent, et al., 1989). As these researchers have noted, it is important to identify those risk factors which are accessible to change and address them. Even those factors which are more easily changed represent probability rather than fact, which can be difficult to predict, especially far into the future.

Adams and West (1988) identified a number of drug prevention programs targeted at youth, and explained the need for such programs by stating "prevention would be far less costly, in both human suffering and financial funding than trying to treat problems after the fact" (p. 185). Drug programs identified by Adams and West are sponsored by various corporations around the United States in the forms of parenting skills, advertisements, classroom and schoolwide programs and encouragement of

student/community cooperation. Additionally, health training and personnel policies to aid families in meeting various needs (e.g. flexible work schedules to allow more time for family obligations) have been provided.

Skills taught in drug education programs include: basic knowledge about drugs and drug use, decision making and problem-solving, coping skills, value clarification, and various social skills allowing students to follow through on their own wishes rather than the pressures of others (Goodstadt, 1989). Additional skills include improvement of self-image, and communication skills (Bruvold, 1990).

Research on drug education programs has failed to provide conclusive evidence either to support or reject the effectiveness of such programs. Differences can be found between genders, age groups, grade levels in school, and degree of drug use experience. Students' level of knowledge has been shown to be more amenable to change than have their attitudes toward or use of drugs. Furthermore, Goodstadt (1989) stated "improvements in knowledge will not necessarily have an impact on drug attitudes or use, and improvements in attitudes may not produce improvements in behavior" (p. 247). Drug education programs have resulted in both positive and negative results in the areas previously mentioned.

Bruvold (1990) studied a number of drug education

programs possessing varying degrees of developmental and rational approaches. Rational programs provide information, both long and short-term, on the effects of various substances on the body. This approach also identifies social and economic effects on the consumer. Subscribers to this approach believe that once this information is given, a student will add it to his or her set of beliefs. The knowledge will change inappropriate attitudes toward drugs and will, at some point be translated into appropriate or socially acceptable behavior.

Developmental programs take the information known about the effects of drugs and teach skills which aid individuals in making their own decisions regarding drug use rather than letting themselves be pressured by others. Theoretically these new-found decision making skills will make children less vulnerable to the use of drugs as a coping mechanism, and will enhance self-esteem. Results of Bruvold's (1990) study indicated that those programs emphasizing the developmental approach had a weak impact on knowledge but a strong effect on attitudes and behavior. Gains in attitude and behavior were modest.

Perry (1987) found support for peer-led drug prevention programs aimed at use of cigarettes, with benefits for those doing the teaching as well as for those being taught. Similar benefits were found in peer-led

prevention programs targeted at other substances as well. Though these programs have shown merit in reducing substance use, they are unable to change the greater environmental factors of poverty and drug availability, thus making lasting changes less likely.

In his review of various drug education programs, Goodstadt (1986) concluded little evidence is available which supports drug education as an effective preventative measure. Methodology in evaluating the various programs has also been found to be inadequate. Available research on drug program efficacy fails to provide consistent positive results, making further planning more difficult. Many existing drug education programs fail to take into account the many different subgroups which can exist in a single population and according to Goodstadt ". . . [proceed] as though classes are comprised exclusively of nonusers" (p. 278).

In explaining the importance of the roles of knowledge, changes in attitudes, and changes in behaviors, and how educators often fail to allow for them, Goodstadt (1986) presented three conclusions:

1. Research indicates "knowledge about . . ." can be influenced by various programmatic approaches, not all of which are equally effective. However, improvements in knowledge are necessary, but are not a sufficient condition

for most behavior change.

2. Attitudes are difficult to influence in a predictable fashion and attitude change does not lead, automatically to a corresponding change in behavior.
3. Behaviors are notoriously difficult to change and are associated with the most problematic outcomes for drug educators (p. 278).

Goodstadt (1986), based on his review of drug education program effectiveness, presented the following recommendations:

1. Program objectives should be specified clearly during program development and evaluation.
2. Objectives should be realistic in taking into account the research evidence concerning their likely impact on knowledge, attitude, skill and behavior.
3. Programs should include an honest exposition of both the costs and benefits of drug use and nonuse.
4. Programs should consider the broader range of past, present, and future reinforcements to which audiences have been, or might be, exposed.
5. Programs should make explicit links between the principles and skills acquired in the classroom and the reality of drugs outside the classroom.

6. Programs should possess sound, and explicitly stated, theoretical bases for their expected social and behavioral influence.
7. As much attention should be devoted to implementing and evaluating programs as to developing them (p. 281).

Of the many drug education programs that have already been developed, Mehring, Tompkins, and Parks (1991) chose to examine the effectiveness of three: a regular drug education curriculum prepared by a suburban school district, Rally Against Drugs (RAD), and Drug Abuse Resistance Education (DARE). The regular curriculum drug education program was taught by the classroom teacher. RAD was a team taught program with school counselors and police officers serving as instructors. The teaching of RAD used the DARE curriculum and objectives from the district counseling curriculum as its sources. DARE was taught by uniformed police officers using the curriculum designed for this particular program.

In the Mehring et al. (1991) study sixth grade students from 15 elementary schools in an eastern Kansas school district served as the sample. Subjects (801) were administered a pretest at the beginning of the year, immediately followed by one of four conditions (i.e. one of the three drug education programs or no drug education program). Those participating in one of the programs

did so during the first 16 weeks of school. Post-tests were completed by the students one week after the drug education programs ended. Pre and post-testing included assessments measuring: 1) drug and alcohol knowledge, 2) substance attitudes, 3) peer pressure, 4) self-esteem, and 5) locus of control.

Mehring et al. (1991) found no significant differences in student attitudes toward drug use after involvement in any of the three drug intervention courses. No gains were made in attempting to change attitudes toward drug use, as indicated by scores on a substance abuse attitude measure. However, students in all three drug education curricula demonstrated improved scores on a questionnaire designed to assess resistance to peer pressure, especially those upper middle-class youngsters completing project DARE. The control group evidenced the greatest gains in resistance skills. Resistance skills of those classified in the lower bracket of the socioeconomic scale (SES) actually had poorer scores for resistance after completing RAD or DARE, while low SES students participating in the regular curriculum demonstrated improved skills in this area.

A similar study was conducted the following year, again with sixth graders, but this time DARE students were the only ones compared with the control group (Mehring & Tompkins, 1992). Similar results to those obtained

in the 1991 study of Mehring, Tompkins, and Parks were reported. There was no significant difference between the two groups on measures for self-concept, attitude toward or use of drugs, resistance to peer pressure, or improved attitudes toward police officers. DARE students did, however, score higher on an instrument which measured knowledge about drugs and alcohol.

While the studies discussed above showed limited support for the use of the DARE program, DARE is one of the most widely used drug education programs in the country. Project DARE is a substance use prevention education program designed for fifth or sixth grade elementary school children. It was developed in 1983 through the joint efforts of the Los Angeles Police Department and the Los Angeles Unified School District. This program is presented by uniformed police officers with the cooperation of the schools. Major areas addressed by DARE include: providing children with skills necessary for recognizing and resisting peer pressure, enhancement of self-esteem, teaching more acceptable alternatives to substance use, development of skills necessary in the decision making process, and building interpersonal and communications skills (North Carolina State Department of Justice (1990); North Carolina State Department of Justice, 1987). The DARE curriculum is comprised of 16 45 to 60 minute lessons presented each week by a

specially trained police officer. After completing the DARE program, participants are awarded a certificate of achievement in a schoolwide assembly.

According to a report issued by the United States Department of Justice, Office of Justice Programs (1988), the DARE program principals and teachers in the Los Angeles area are claiming their students ". . .are less accepting of substance use and better prepared to deal with peer pressure as a result of the DARE lessons"

(p. 2). In this same report, the evaluation for the National Institute of Justice was cited as detecting improvements in the knowledge, attitudes and self-reported behavior in seventh grade students who had completed the DARE curriculum in the sixth grade.

Others in the field also view DARE favorably (Pellow & Jengeleski, 1991). While Pellow and Jengeleski view the DARE program as "Another promising drug program. ." (p. 205) they give it little scrutiny.

Mehring, et al. (1991) and Mehring and Tompkins (1992), were not the only researchers to report mixed results in the effectiveness of drug program implementation. DeJong (1986) evaluated the DARE program on behalf of the Department of Justice in Washington D.C. and relayed no negative results. A later study by DeJong (1987) yielded mixed results. DeJong included the following in his more recent study: a self-esteem measure,

opportunities for expressing acceptance or rejection of substances when offered, self-report of substance use within the past six months, attitudes toward drug use, and prediction of their own future use.

DeJong (1987) found DARE participants demonstrated significantly stronger refusal skills than did their nonDARE counterparts. Additionally, DARE students reported lower overall substance use than those not taking part in DARE. However, DARE students did not demonstrate gains in all areas, as no difference was noted between the DARE and nonDARE groups in level of self-esteem or knowledge and attitude of drug use. No differences were noted between DARE and nonDARE students in predictions of future use.

DeJong (1987) also examined gender as a variable influencing subjects' responses. It was found boys in the DARE group reported less substance use than nonDARE boys, while few differences between DARE girls and nonDARE girls were found. Additionally, DARE boys showed more positive attitudes toward drug avoidance and higher levels of knowledge about various substances than those boys not participating in DARE. The opposite was found to be true for girls.

In considering the significance of the results of DeJong's 1986 study, it is important to note that no pre-test was given to detect pre-existing differences

between the DARE and nonDARE groups. DeJong also failed to conduct a follow-up of this sample, choosing instead to test them only once over a fairly short period of time.

Mixed results for the effectiveness of DARE in drug prevention was found in yet another study (Ringwalt, Ennett, & Holt, 1991). In this study, children in the DARE program showed improvements in awareness of the costs involved in using cigarettes and alcohol and their views of media participation in promoting the use of alcohol and cigarettes was increased. In addition, DARE participants reported more negative attitudes toward the use of drugs, lower rates of perceived substance use among peers, and more assertiveness than their nonDARE counterparts. However, even these positive results failed to be translated into more positive action, as the participants in DARE did not report diminished use of drugs nor intentions to do so in the future. Additionally, no change was noted in their level of self-esteem.

Faine (1989) conducted both long and short term studies on DARE program participants and reported positive results. These researchers followed students through the DARE program and one year later. While positive short-term gains were found in this population in the same areas as studies cited earlier, most of those gains were lost by the next year. It is also important to note no positive gains were found for lower-class metropolitan

students, short or long term, demonstrating the DARE approach has limited effects with some subjects.

As illustrated through those studies previously discussed, the efficacy of drug education programs as a means of influencing attitudes toward drug use is questionable. While some researchers discovered subjects reported more appropriate attitudes toward drug use after participation in DARE, this finding was not consistent across short-term studies. The same was found to be true for the few long-term DARE studies as well. As it is the goal of most drug education programs to contribute to long-term acceptable attitudes toward drug use, more evaluations of this nature need to be conducted. It is the goal of this study to investigate the long-term effects of three drug intervention programs on the drug use attitudes of the young.

Statement of Hypotheses

After examination of the results of comparisons between SAS scores of males and females over time, it is hypothesized the following will be found to be true:

1. Subjects will maintain appropriate attitudes toward substance use nine months after participation in all three drug education programs.
2. No difference will exist between the scores of males and females on a substance attitude measure between pre and post tests.

Statement of Significance

Data obtained from this study may add new information in the field of drug education and aid those developing drug intervention programs in the future. A need for research in this field exists as no effective means of preventing substance abuse in our youth is available. While some short-term gains were found in some students' skills in avoiding drug use, data supporting long-term improvements in behavior is sparse. As prior research has repeatedly demonstrated, drug use results in detrimental effects on our young. The future development of effective interventions is vital.

Summary

It is evident further study is necessary to determine long-term effects of participation in a drug intervention program. Long-term effects of three intervention approaches (regular curriculum, RAD, and DARE) will be the focus of this investigation. It is also of importance to investigate differences which may exist between genders in order to address the different needs of each group. Subsequent chapters of this study will describe the methodology used and will include specific information on the population studied, measures and procedures, statistical design, and limiting factors.

CHAPTER II

METHOD

In Chapter I, research on the efficacy of drug prevention programs for youth of varying ages was discussed. In Chapter II, information from Chapter I will be applied and the method, purpose and limitations of this study will be described.

Database

The sample for this study included 90 students from a large suburban school district who served as sixth grade subjects in the Mehring and Tompkins (1991) study who matriculated to the seventh grade in the same school district the following year. Each student completed one of three drug awareness education programs during the Mehring and Tompkins study: 1) Drug and Alcohol Resistance Education (DARE); 2) Rally Against Drugs (RAD); or 3) a Sixth Grade District Designed Drug Education Curriculum. DARE is a widely used drug intervention program developed by the Los Angeles Police Department in cooperation with the Los Angeles Unified School District and taught by uniformed police officers. DARE provides students with such information as the harmful effects of drugs and skills in refusing drug use rather than giving in to peer pressure. RAD is very similar to DARE in structure and content with the main difference being that the personnel

presenting the material are school counselors instead of police officers.

Since all subjects completed the DARE program following the initial study, it was not possible to analyze differences between specific drug education programs. Therefore, subjects from all three drug education programs were grouped together, resulting in a total sample size of 90. This sample was comprised of 48 males and 42 females tested as sixth graders one month following completion of a drug education program and again nine months later as seventh graders.

The student population in this school district is comprised primarily of middle-class suburban dwellers. Most of these individuals are classified in the lower middle-class and upper middle-class socioeconomic status (SES) categories.

Procedure

In collecting the comparative data for the present study, Mehring and Tompkins (1991) gathered six pieces of information for each student: 1) level of Socioeconomic Status (SES) as reported for each student by his/her teacher on the Family Survey Form For Principals (Hollingshead, 1958) as presented in Mehring et al. (1990) (see Appendix A); 2) self-report of attitudes toward the use of drugs as measured by the Substance Attitude Survey (Appendix B); 3) a Drug and Alcohol Knowledge

Questionnaire; 4) a Peer Pressure Questionnaire; 5) a Self-Esteem Inventory; and 6) the Norwicki-Strickland (a generic locus of control instrument seeking to determine whether a subject is internally or externally motivated).

In the fall of 1991, sixth grade teachers in 15 elementary schools in an eastern Kansas school district received the six measures mentioned above. The final five of those instruments were to be completed by each student during class and required approximately 30 to 45 minutes to finish. Each student's survey was accompanied by a cover letter providing some information on the purpose of the study and explaining the means by which confidentiality for each student would be maintained. Each student wrote his/her name on the first page of the survey. Once the survey was introduced and the cover letters removed, the teachers read the directions for each of the measures aloud. After the directions were read to the students, each question on each instrument was read aloud by the teacher to the class to minimize response error due to reading difficulty. Following the completion of the surveys they were turned into the teachers who placed them in an envelope and returned them to Emporia State University. Once the surveys were received by the research team at Emporia State University, they were entered into the computer by their identifying number and analyzed accordingly. After all data was

entered into the computer the survey forms were destroyed to maintain anonymity of responses for all subjects.

Near the beginning of the second semester of the student's sixth grade year, the instruments previously discussed (with the exception of the Family Survey Form) were readministered in order to detect any changes in the areas covered by each measure (e.g. drug and alcohol knowledge, attitudes toward drug use, resistance to peer pressure, self-esteem, and locus of control). The methods by which data were obtained and analyzed duplicated the initial procedure.

Those students participating in drug education did so for a 16 week period, ending with the first semester of the sixth grade year. Approximately nine months later, at the beginning of the seventh grade year, those students serving as subjects in the Mehring and Tompkins (1991) study, were surveyed once more using five of the six instruments utilized during the sixth grade testing sessions. The SES instrument was not readministered. The method for obtaining and analyzing data was identical to procedures used by Mehring and Tompkins with one exception: students did not write their name on the surveys. Instead, a label was affixed to the cover letter of each survey, in the upper right hand corner. On the label was pre-printed the student's name and identification number. Once the cover letter was read aloud to the class,

the students were instructed to remove the cover letter from the survey and either keep it (separate from the survey) or discard it. This was done to ensure anonymity, thus encouraging more honest answers. On the page immediately following the cover letter was fastened a second label containing the student's identification number which was used in place of his/her name. Once again, the data was entered into the computer by each subject's identification number. After the data was entered into the computer, this final set of surveys was destroyed.

Research Type

The present study is descriptive research. This type of research seeks to identify existing conditions as carefully as possible. The present study expanded the 1991 research of Mehring and Tompkins which identified characteristics of a group of students immediately before and one month following participation in one of the three drug education conditions, through investigation of the characteristics of that same group nine months later. This was done in order to assess differences in the sample after completing the drug education programs and to determine the durability of those changes over time.

Instrumentation

The Substance Attitude Survey (SAS) measures students' attitudes toward drug usage at three intervals. Mehring and Tompkins (1991) assessed subjects prior to

participation in one of the three intervention programs (pretest) and one month after completing a program. In the current study, the SAS was administered to subjects nine months after they participated in post-testing by Mehring and Tompkins (1991). Goodstadt (1986) documented associations between attitude toward drug usage and actual use. He found attitude toward drug usage to be the most accurate single measure predictor of actual usage.

The SAS was originally developed by Mehring, Tompkins, and Parks in 1990 as part of a comprehensive study investigating the effectiveness of varied drug education intervention programs. The SAS was juried by the authors prior to its first use in order to determine the clarity and value of each question. The SAS is a 22-item survey presenting questions in a manner allowing for a continuum of responses. Subjects answer self-reference items by marking one choice for each question. Question number 9 is presented below to illustrate the question/answer format:

Smoking marijuana is a good way to have fun.

- A. Yes
- B. No
- C. Do not know

The SAS contains questions pertaining to substance use and attitudes. The SAS was used to determine the effectiveness of three drug education programs on attitudes

toward the use of various drugs, both short and longer term.

Instrumentation should not be a concern as the SAS has proven through statistical analysis (Mehring, Tompkins, & Parks, 1990) to possess adequate reliability ($r = .84$). Because completion of the SAS is dependent upon the honesty and accuracy of the subjects' self-assessment, it is important to recognize that not all subjects will be accurate and forthright in their answers. However, relying on the truthfulness of respondents to self-report measures has proven to be a valid exercise as evidenced by positive results in corroborating measures of truthfulness, as discussed in Chapter I.

This protocol yielded a single overall score. Higher scores indicated more accepting attitudes toward drug use, while lower scores suggested the opposite. The internal reliability and validity of the SAS, as discussed in Chapter I, were established with subjects the same age as those included in this study.

Included along with each subject's responses on the SAS was information regarding their socioeconomic status (SES) as evaluated by their teachers on the Family Survey Form For Principals. Socioeconomic status was determined through ratings in four areas: parents' occupation, source of income, housing, and dwelling area. Each of these categories is further divided into seven subdivisions

with 1 representing the highest SES and 7 the lowest. Each category is assigned a weighted value which is multiplied by the subdivision number. Once the multiplication for each category is completed, all four scores are added together and fall within one of five pre-determined ranges, thus denoting the level of SES ranges. Occupation is multiplied by 4, source of income by 3, house type by 3, and dwelling area (e.g. the area around the home) by 2. This measure is a derivative of earlier scales developed by Hollingshead (1957).

The present study used an adjusted version of the original Hollingshead Index (Hollingshead, 1957). The adjusted protocol included parents' salary and was placed into each subcategory based on information from the 1991 Cost of Living Index as cited in Mehring and Tompkins (1991).

Data collector characteristics deserve some attention, as those administering the SAS differed between teachers as well as between schools. This problem was minimized, however, as administration of the SAS required minimal interaction between the collectors and the subjects. Test questions were read aloud to the students in order to reduce response error due to reading difficulties. Additionally, those administering these measures were given a specific set of directions for testing (see Appendix C). A large sample size also aided in

compensating for differences in responses. Testing threat may have played a moderate role in this study as subjects may have chosen to answer in a manner which made them appear virtuous, or may have taken the opposite stance and contrived to appear as deviant as possible. In order to minimize both of the aforementioned possibilities, anonymity was guaranteed for participants and strongly emphasized in the directions (Appendix D) provided for them at all testing sessions.

While several other measures were discussed in conjunction with this study, only the SAS and the Hollingshead were given further attention. The SAS was utilized because attitudes are among those factors more closely associated with substance use. The Hollingshead was used as well because SES can have a tremendous effect on attitudes toward drug use. SES was not analyzed further as the income distribution of this population was homogenous in nature.

Hypotheses

Mehring and Tompkins (1991) reported gains in appropriate attitudes toward substance use among students participating in the three drug education programs during their sixth grade year. It was hypothesized that attitudes of subjects regarding substance use reported at the completion of one of the three drug education programs (Mehring & Tompkins, 1991) would not be present by the

testing session nine months later. This hypothesis was based on research cited in Chapter I. Many of these studies failed to find significant changes in attitude which were maintained over long periods of time. A second hypothesis focused on gender differences. Past research, as cited in Chapter I, has indicated varying degrees of differences between males and females in drug use attitudes, with males generally reporting more positive attitudes. In consideration of these points, the researcher wished to reject the null hypothesis and accept the alternative hypothesis, indicating existing differences between groups.

The following statistical abbreviations were used to illustrate the hypotheses:

Ho: $M_{\text{post}} = M_{\text{post-post}}$

$M_{\text{male}} = M_{\text{female}}$

$M_{\text{male post}} = M_{\text{male post-post}} =$

$M_{\text{female post}} = M_{\text{female post-post}}$

Ha: $M_{\text{post}} \neq M_{\text{post-post}}$

$M_{\text{male}} \neq M_{\text{female}}$

$M_{\text{male post}} \neq M_{\text{male post-post}} \neq$

$M_{\text{female post}} \neq M_{\text{female post-post}}$

Statistical Design

A 2 (male or female) X 2 (post-testing, Mehring and Tompkins, 1991, and nine month follow-up) factorial analysis of variance (ANOVA) was used to determine

differences between scores on the SAS as a function of time and gender. A two-way ANOVA allowed for analysis of variance due to each independent variable and the interaction between the two independent variables. Statistically significant results were analyzed through the use of the Tukey test in order to determine the specific areas of significance. A significance level of $p \leq .05$ was used.

CHAPTER III

RESULTS

This study evaluated the effect of time on students' attitudes toward drug/alcohol use following participation in one of three drug education programs provided for them in an Eastern Kansas suburban school district. This research endeavor followed a group of students from one month after completion of a drug education program to a time period approximately nine months later. Differences in attitudes between genders were assessed over time. As a means of studying these groups and the differences between them, a two-way ANOVA was calculated. Subject means and standard deviations are included in Table 1, and ANOVA results are presented in Table 2.

In further assessment of the data and the significance of the scores of each group, the Tukey procedure was utilized. The interaction between gender and time was statistically significant. This suggests that the interaction of time between pre and post tests and the gender of the subjects had a strong influence over scores, with time and all its experiences exercising greater influence over the scores of males than females. As indicated in Table 2 this interaction was found to be significant with F at the .002 level.

Comparisons of these results, as seen in figure 1, suggested that the interactions between groups is

disordinal in that the females in the first testing session scored higher than the males, while the opposite is true for the second session. This finding indicated time had a more negative impact on the appropriate attitudes of males completing one of three drug education programs than on their female peers.

As shown in Table 3, scores for both males and females increased over time, indicating more accepting attitudes toward drug use with the greatest increases found for males. These changes occurred within a nine month period.

The results presented above lead this researcher to reject the first null hypothesis which stated scores on the SAS would not be significantly different between testing periods. The second null hypothesis which stated no significant differences exist between the males and females was also rejected. Differences were found not only between genders, but also between survey administrations, with more negative effects on male subjects over time.

Summary

This study sought to determine the durability of drug education influences over the attitudes of adolescents toward drug use over time. The impact of drug education between genders over time was measured through the use of ANOVA with the Tukey procedure used as a follow-up test of significance. The significance of the interaction

between gender and time precluded the necessity of interpretation of main effects. Time had a tremendous effect over the attitudinal scores of males in this study. Males self-reported less healthy attitudes toward drugs and drug use nine months following drug education than they did during the first subsequent month.

Results of this study indicated significant differences exist between genders, and over time between testing sessions. These differences indicate the rejection of both null hypotheses.

Table 1

Means and Standard Deviations For Males and Females Pre
and Post Tests

	<u>Pre Test</u>			<u>Post Test</u>			
	<u>M</u>	<u>SD</u>	<u>N</u>	<u>M</u>	<u>SD</u>	<u>N</u>	
males	33.74	5.16	48	males	41.46	5.54	48
females	33.90	4.79	42	females	37.81	9.65	42
Total	33.82	4.98	90	Total	39.76	7.95	90
Total Sample <u>M</u> =	34.56			Total Sample SD =	5.76		

Table 2

ANOVA Results For Male and Female SAS Scores For Pre and Post Tests

	SS	DF	MS	F	<u>p</u>
Within Cells	20861.05	718	29.05		
Test	2652.76	1	2652.76	91.30	.000*
Gender	238.52	1	238.52	8.21	.004*
Test By Gender	284.88	1	284.88	9.81	.002*

*p ≤ .05

Figure 1. Disordinal interaction between males and females pre and post tests

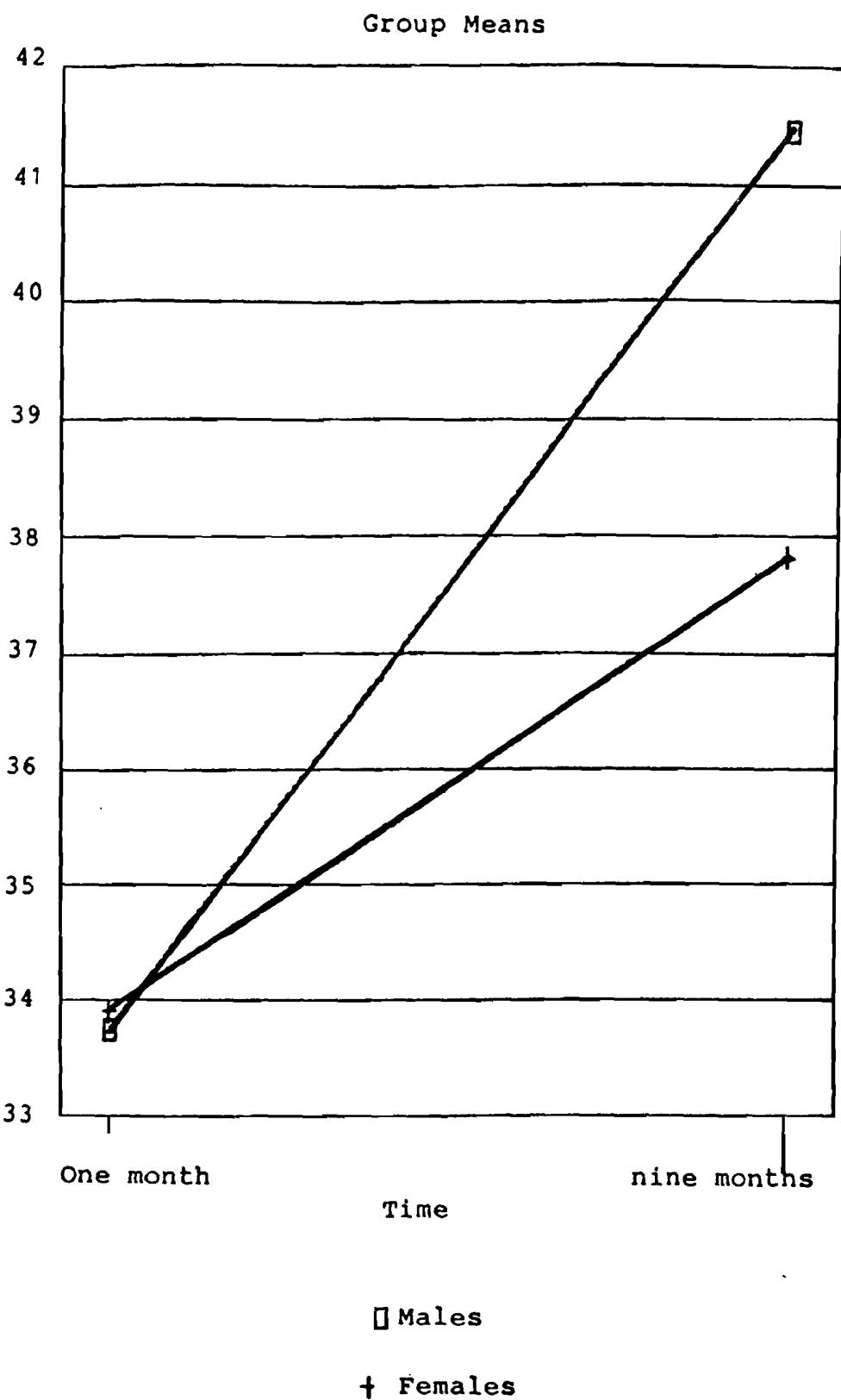


Table 3

Disordinal Interactions Between Groups (Group Means)

Gender		Time	
		One Month Later	Six Months Later
	Males	33.74	41.46
	Females	33.90	37.81

CHAPTER IV

DISCUSSION

The purpose of this study was to assess the effectiveness of commonly used drug education programs over time in influencing the attitudes of adolescents toward drug use. Prior research indicated attitudes, though more difficult to change than knowledge, were more closely linked to behavior. As it is a primary goal of drug intervention programs to reduce, if not eliminate the use of drugs by our youth, researchers have recognized the importance of drug education research. Many of these researchers have found several strong and enduring factors influence the attitudes and behaviors of adolescents. These factors may have enough impact that brief intervention measures first used after many years of exposure to negative influences are ineffective.

In this study, students were surveyed during the middle of their sixth grade and beginning of their seventh grade years, as this is the age group for which many of today's drug education programs are targeted. However, as these youngsters have had approximately 12 to 13 years of influences from family, friends, and other environmental factors, which will continue far beyond the drug education programs, it appears unlikely that long-term positive

attitudinal effects will be found. In fact, both male and female subjects in this study reported increasingly inappropriate attitudes toward drug use by the final testing session.

As a means of testing the hypotheses, sixth grade students in a school district were surveyed to assess their attitudes toward drug use one month following one of three drug education programs. These same students were surveyed again approximately nine months later as seventh graders in order to determine whether attitudinal changes would last for any length of time.

ANOVA was used to compare the responses of males and females over time. As was hypothesized earlier, accepting attitudes toward drug use increased over time for both males and females. Female subjects initially reported more accepting feelings toward drug use than did their male peers, with a reversal in those roles found during the second testing procedure.

As discussed in Chapter II, environmental influences over time are only one explanation for the decline in appropriate attitudes toward drug use. Research cited in Chapter I indicated that short term drug education programs which are not implemented until students have reached adolescence are ineffective in exercising influence over drug use attitudes for long periods of time due to stronger more enduring factors. Factors such as family

and friends are more intrusive and are in place long before and long after participation in a drug education program. It has also been shown that knowledge is a good deal easier to change than attitudes and attitudes are more closely associated with use than is knowledge.

This study, and those conducted by other researchers (Bruvold, 1990; Faine, 1989; Goodstadt, 1986; Goodstadt, 1989; Perry, 1987; Ringwalt, Ennett, & Holt, 1991) indicate a need for more information on necessary elements for drug education for students of different ages, with education beginning at earlier ages and being ongoing, rather than a single semester first occurring during adolescence. Additionally, it may well be that more attention needs to be given to the influence of environmental factors, with means of compensating for them.

Future research should study the effectiveness of drug education over longer periods of time, beginning long before adolescence. In addition to beginning drug education at a younger age and making a longer time commitment, intervention techniques should also be assessed for age-appropriateness. Different strategies may work better with certain developmental stages. It is evident that there is much to consider when planning and implementing drug education programs.

Future practitioners should be mindful of the diverse needs of the child population. With such a diverse

population it is unlikely that the needs of all youth can be met through a single approach. More importantly, the responsibility for deterring drug use in children should be shared with others, especially parents, rather than assigning sole responsibility for this to the school systems. This researcher also recommends providing effective drug use prevention programs beginning at much earlier ages than those traditionally used as a starting point.

Summary

Through the use of the ANOVA and the Tukey procedure the results of this study showed that despite the efforts of drug education programs, participants of both genders adopted increasingly positive attitudes toward drug use. These results demonstrated the need for further drug education research. Also, these results, along with those of prior research efforts (Elder et al., 1987; Kinkel, Bailey, & Josef, 1986; Kovach & Glickman, 1986; Segal, 1991) indicate that planning ahead for the drug education needs of our youth should be considered to be of prime importance. It has been demonstrated that brief intervention methods first occurring during adolescence are too little too late in overcoming strong, consistent environmental factors. It may also, in time, become evident that education alone, even that completed at an earlier age, may not be sufficient in preventing drug use among

the young. Rather, more intrusive means directed at changing environmental factors may be necessary.

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APPENDIX A

FAMILY SURVEY FORM FOR PRINCIPALS

One of the factors we want to investigate as part of the Olathe drug curriculum study is socioeconomic status (SES). Although schools have been targeted as high or low SES, individual families within those schools may vary markedly from the designated status. Therefore, your ranking of each sixth grade students' family on four status variables (occupation, source of income, housing, and dwelling area) will provide valuable information which will allow the SES of each individual student to be considered in analyzing the data for this study. Each of the four SES categories - occupation, source of income, housing, and dwelling, area - have seven possible descriptive rankings:

Occupation (major income provider only)

0. No information available
1. Professional or Proprietor (Established physician, lawyer, CPA, major executive; owner of a business employing full time employees; salary \$75,000 or more)
2. Minor professional or proprietor (beginning physician, lawyer, owner of family business without full time employees, etc.; salary \$20,000 - \$75,000)
3. Semiprofessional (salesperson, cashier, etc.)
4. Skilled worker (bookkeeper, law enforcement officer, railroad engineer)
5. Medium-skilled worker (telephone operator, carpenter, plumber, barber, fire fighter)
6. Semi-skilled worker (taxi or truck driver, gas station attendant, waiter)
7. Unskilled worker (laborer, custodian, etc.)

Source of Income

0. No information available
1. Inherited wealth
2. Earned wealth (live on savings or investments)
3. Profits and Professional fees (money paid to professional/proprietors and minor professional/proprietors)
4. Salary and commissions (regular income paid for services on a monthly or yearly basis - i.e. teacher)
5. Wages (amount paid is determined by an hourly rate)
6. Private relief (money paid by friends, relatives, churches, or private associations)
7. Public relief or non-respectable income (money received from a government agency or semi-public charity organization. Non-respectable income includes money made from illegal occupations such as gambling or prostitution)

APPENDIX B

Substance Attitude Survey

Directions:

Please circle the letter (A,B,C, etc.) before the response which best describes your answer.

1. What is your sex?
 - A. Boy
 - B. Girl
2. Smoking cigarettes is fun.
 - A. Yes
 - B. No
 - C. Do not know
3. The drug used most often by those 18 or under is:
 - A. Marijuana
 - B. Alcohol
 - C. Cocaine
 - D. Downers
 - E. Do no know
4. How many cigarettes have you smoked in the last month (30 days)?
 - A. None
 - B. One or part of one
 - C. 2-4
 - D. 5-20
 - E. More than one pack
5. How many of your friends sometimes use marijuana?
 - A. None
 - B. A few
 - C. Several
 - D. Most
 - E. All
6. Alcoholism is a disease.
 - A. Yes
 - B. No
 - C. Do not know
7. Kids who drink beer are acting dumb
 - A. Yes
 - B. No
 - C. Do not know

8. How many of your friends sometimes use cigarettes?
A. None
B. A few
C. Several
D. Most
E. All
9. Smoking marijuana is a good way to have fun.
A. Yes
B. No
C. Do not know
10. How many times have you used smokeless tobacco in the last month (30 days)?
A. None
B. Once
C. 2-4 times
D. 5-10 times
E. 11 or more times
11. Not counting the use of wine in church, how often do you use alcohol (beer, wine, liquor)?
A. Never
B. At least once a day
C. Once or more a week but not daily
D. Once or more a month but not weekly
E. Once or more a year but not monthly
12. Most kids get drugs from their friends or brothers and sisters.
A. Yes
B. No
C. Do not know
13. How often do you smoke cigarettes?
A. Never
B. At least once a day
C. Once or more a week but not daily
D. Once or more a month but not weekly
E. Once or more a year but not monthly
14. Cigarettes are as bad as grown-ups say.
A. Yes
B. No
C. Do not know
15. Black coffee and cold showers make drunk people sober.
A. Yes
B. No

16. How many drinks of beer, wine, or liquor have you had in the last month (month)?
A. None
B. One or part of one
C. 2-4
D. 5-10
E. 11 or more
17. How often do you use marijuana?
A. Never
B. At least once a day
C. Once or more a week but not daily
D. Once or more a month but not weekly
E. Once or more a year but not monthly
18. Drinking beer is a good way for kids to have fun.
A. Yes
B. No
C. Do not know
19. How often do you use smokeless tobacco?
A. Never
B. At least once a day
C. Once or more a week but not daily
D. Once or more a month but not weekly
E. Once or more a year but not monthly
20. How many times have you used marijuana in the last month (30 days)?
A. None
B. One or part of one
C. 2-4
D. 5-10
E. 11 or more
21. How many of your friends sometimes use alcohol (beer, wine, liquor)?
A. None
B. A few
C. Several
D. Most
E. All
22. Kids can be alcoholics.
A. Yes
B. No
C. Do not know

APPENDIX C

April 3, 1992

Dear Sixth Grade Teacher,

As you know the Olathe School District in conjunction with Emporia State University has been conducting varied investigations of drug intervention programs used by USD 233 during the past three years. Recent published studies have suggested that teacher attributes and school climate may interact with student acquisition of appropriate knowledge and attitudes toward drug and alcohol use. To investigate the influence of two factor on the awareness and attitudes of Olathe students, we are asking all 6th grade teachers to complete the two assessment tools included with this letter.

The Texas Social Behavior Inventory will allow us to compile a profile of teacher attributes reported to influence student behavior. All data obtained will be reported as GROUP data. Your responses are confidential-no individual responses will be shared with the district or summarized in the final report. Data from 6th grade teachers in your school will be pooled with responses from teachers from the other elementary schools which used a similar drug intervention approach (DARE or Control). The second measure is a school climate survey. Your completion of this measure will help us determine which, if any, school climate factors might influence student knowledge and attitudes about drug and alcohol use and resistance. Again, your responses are confidential and will only be summarized as group data.

Your questionnaires have been marked with a code which identifies you and only your school. The two researchers listed below have access to this code. The code will allow the researchers to group the data for analysis by intervention approach and school socioeconomic status. All individual response sheets will be destroyed once data is entered into the computer for analysis.

Completion of the two assessment tools included with this letter should require approximately 10 to 15 minutes of your time. Your initial response after reading each question is what should be recorded. Do not spend abundant amounts of time thinking about each question Once you have completed the two measures, please insert them into the envelop provided. Please mail your responses no later than APRIL 20.

If you should have any questions regarding the study, please feel free to contact us. If you are interested in the results of this study, please contact one of the primary investigators listed below. A formal summary report will be provided to the Olathe central office administrators the first week of June. Thank you for your participation in this very important investigation.

Sincerely,

Tes Mehring

Loren Tompkins

APPENDIX D

DIRECTIONS**Drug Education Project**

Dear Students,

You may remember earlier this year completing some surveys for our district. Once again, our school district is interested in knowing how you feel and think. We would like you to complete the same surveys you completed earlier this year.

This is NOT a test. Instead, we are going to ask you to tell us how you feel. The best answer to each question is the one that fits how you feel. To help us get this information **ALL 6th grade students** in Olathe are going to answer these questions. The results will be used to better understand the feelings and experiences of people your age.

All answers will be kept totally secret. You will only be identified by a code number and not by name. In a moment, you will tear off the sheet that has your name on it. The answers you give will never be released, and only general answers for large groups of students will ever be reported. Neither you, your teachers, your parents, nor anyone else will be able to see the results of your questionnaire. All the surveys will be sent to professors at Emporia State University who are summarizing the results. The professors are NOT allowed to give out your name or anything else to identify you to anyone.

You will need a pencil or a pen. Your teacher will read the directions and all of the answers with you. Your teacher cannot answer any questions about the survey.

Please remember that the more honest your answers are, the more accurately we can summarize the feelings and experiences of kids your age. Thanks for your help!

TO: All Graduate Students Who Submit a Thesis or
Research Problem/Project as Partial Fulfillment
of The Requirements for an Advanced Degree

FROM: Emporia State University Graduate School

I, Donna Johnson, hereby submit this thesis/report to Emporia State University as partial fulfillment of the requirements for an advanced degree. I agree that the Library of the University may make it available for use in accordance with its regulations governing materials of this type. I further agree that quoting, photocopying, or other reproduction of this document is allowed for private study, scholarship (including teaching) and research purposes of a nonprofit nature. No copying which involves potential financial gain will be allowed without written permission of the author.

Donna L. Johnson
Signature of Author

7-22-93
Date

Drug Education in Early
Adolescence
Title of Thesis/Research
Project

Dee Cooper
Signature of Graduate
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