

EFFECTS OF A COMPREHENSIVE SUBSTANCE USE PREVENTION PROGRAM

WITH URBAN ADOLESCENTS

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ABSTRACT

School-based substance use prevention programs that use a social influence approach and/or teach life skills have been the most effective. Programs that include peer leadership have been mixed in their effectiveness, but may be socially influential in changing peer norms and group dynamics. The current study evaluated the effectiveness of the Peer Prevention Project, a comprehensive life skills substance use prevention program, which was implemented during the 2007-2008 school year. The overall sample included 129 male and female students in the 8th grade across 4 middle schools of an urban, low-income school district. Participants were randomly assigned to the treatment condition or a no-treatment, minimal-contact control condition. There were 67 participants in the treatment group and 62 participants in the control group. The program included weekly meetings with adult advisors, opportunities to lead outreach groups with younger students, and activities designed to build parent-child relationships, and develop prosocial bonds to peers, teachers, and school. Program effects were evaluated using multivariate analyses of covariance (MANCOVA). Controlling for school and pre-test scores, there were no statistically significant differences between the treatment and control conditions on generic skills, affective skills, school bonding, substance use, or the behavioral outcomes. Although these findings provide no evidence of the success of the Peer Prevention Project, limitations in the current research suggest that future evaluations should be conducted.

DEDICATION

This project is dedicated to those who work toward creating brighter futures for at-risk youth.

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CHAPTER I

Introduction and Literature Review

Youth substance use and abuse are major public health concerns in most Western countries (Cujpers, 2002). The consequences of substance use, on an individual-level, include undermined motivation, interference with cognitive processes, increased risk for the development of debilitating mood disorders, wasted financial resources and increased risk of accidental injury or death. On a societal level, these consequences result in a higher cost of health care, higher rate of educational failure, increased need for mental health services, increased need for drug and alcohol treatment, and increased juvenile crime (Hawkins, Catalano, & Miller, 1992).

Most adolescents begin experimenting with alcohol, tobacco, and other drugs in early adolescence (Johnston, O'Malley, & Bachman, 2003; Tucker, Ellickson, Orlando, Martino & Klein, 2005). Given the danger associated with substance use, school-based prevention may be critical in helping to reduce the number of adolescents who begin to use drugs and in decreasing substance use in those who have started using. School-based prevention programs have demonstrated effectiveness in reducing alcohol and drug use, as well as reducing drop out rates, nonattendance, and other conduct problems (Cujpers, 2002; Gottfredson & Wilson, 2003; Wilson, Gottfredson & Najaka, 2001).

Advancements in substance use prevention programs have resulted from converging research in the areas of developmental psychology, social emotional learning, and meta-analytic research. Developmental perspectives have shaped the design of effective school-based prevention programs by identifying etiological pathways and mediators of drug use. The social development model seeks to explain a variety of antisocial behaviors by specifying predictive developmental relationships (Catalano, Hawkins, Newcomb & Abbott, 1996). According to this theory, prosocial behavior and antisocial behavior can evolve as a result of the learning and bonding experiences that are reinforced throughout development. Furthermore, social and cognitive skills play a role in these developmental pathways by affecting perceived rewards of behavior (Catalano et al., 1996).

The social development model hypothesizes that if prevention programs incorporate the mediators associated with prosocial or antisocial pathways they may interrupt these causal processes and divert the development of antisocial behavior. Risk-focused approaches have been touted as the most promising routes to the prevention of drug abuse and other problem behaviors (Hawkins et al., 1992). Perceived opportunities for prosocial involvement, involvement in prosocial activities, perceived rewards for prosocial involvement, social skills, and bonding to prosocial others and activities are protective factors that interrupt the development of substance use. Conversely, substance use in childhood, perceived opportunities for antisocial involvement, interaction with those involved in problem behaviors, perceived rewards for antisocial involvement, and bonding to antisocial others and activities are risk factors that predict substance use in adolescence and young adulthood (Catalano et al., 1996).

Social emotional learning (SEL) is another area of research that has influenced substance use prevention. SEL initiatives seek to prevent problem behaviors before they develop. This approach formed in response to the increasing changes in sociological and psychological conditions in schools in the 20th century. Higher school populations, greater diversity of students, students with more varied abilities and motivations for learning, higher rates of mental health problems, deficits in social-emotional competence, and the prevalence of high-risk behavior among adolescents and young adults necessitated school-based prevention programs to promote health, competence, and youth development (Greenberg et al., 2003). SEL integrates the strategies derived from developmental theories for reducing risk factors and enhancing protective mechanisms. Effective classroom-based SEL instructional programs have demonstrated that this approach can effectively prevent specific problem behaviors (Greenberg et al., 2003).

Meta-analytic research identified which programs had been more successful. These reviews have focused on identifying the variables that have led to program success or failure. For example, Tobler and Stratton (1997) found that interactive programs produced higher effect sizes for reducing drug use than noninteractive programs. In their meta-analysis, Tobler and Stratton (1997) also demonstrated that most programs addressed knowledge, affective content, refusal skills, and generic skills. Knowledge included drug effects, media and school consequences, and normative education about actual peer drug use. Affective skills covered self-esteem, feelings, personal insights, self-awareness, attitudes, beliefs, and values. Refusal skills related to drugs, public commitments not to use drugs, cognitive-behavioral skills, and activities that promote

networking with adolescents that do not use drugs. Finally, generic skills included personal and social competencies such as: decision-making, communication, coping skills, social skills, and assertiveness (Tobler & Stratton, 1997).

Programs emphasizing knowledge and affective content, in combination or alone, were less effective and tended to use noninteractive methods (Tobler & Stratton, 1997). In contrast, programs that combined knowledge with refusal skills, which have been referred to as “social influence” approaches, or with both refusal skills and generic skills, called “comprehensive life skills” programs, tended to use interactive methods (Tobler & Stratton, 1997).

Tobler (2000) defined interactive programs as those that provide more contact and communication opportunities for participants while also encouraging the learning of refusal skills. However, this definition of interactive programs confounds active teaching strategies and increased social interaction. It is unclear whether use of more active teaching strategies alone leads to a program being more interactive, whether increased social interaction of program participants alone leads to a program being more interactive, or whether a combination of these factors is necessary. Possibly, increased opportunities for communication amongst peers, while learning about refusal skills, is effective without the need for the program implementer to use active teaching strategies. The activities and content of a program could also be key, however, in facilitating increased social interaction.

The social influence component of interactive programs has been deemed a “normative” approach. This term emphasizes the influence that the normative approach can have on peer perceptions of the acceptability of drugs, beliefs in peer approval of

drug use, and knowledge of drug use prevalence. These normative elements have been identified as the most important mediators of effective substance use prevention programs (Cujpers, 2002). It seems plausible that increased social interaction during the learning of refusal skills alone, or in combination with other generic skills, leads to changes in peer perceptions regarding substance use. These effects are aligned with the social development model's theory that programs are successful when they provide and reinforce involvement in prosocial activities and build prosocial bonds.

Adolescence is a time when peers are more susceptible to peer influence as opposed to adult influence, thus it is a critical period in development to intervene. Working with the peer group could also be more effective since peers are more likely to buy into ideas if they perceive that their peers are buying into them. In addition, adolescents who are considered more at risk for developing antisocial behaviors, as a result of an increased exposure to risk factors, could be prime focuses for prevention programs. There is evidence showing that substance use prevention programs targeting middle or junior high school students and ethnic minority youth have yielded more positive results (Cujpers, 2002; Gottfredson & Wilson, 2003; Tobler & Stratton, 1997; Wilson et al., 2001). Furthermore, programs as short as 4.5 months, or a total of 18 hours, have been shown to be as effective as longer programs (Gottfredson & Wilson, 2003; Tobler & Stratton, 1997). Thus, the ability to affect peers is attainable within a school setting, where program length can, fairly easily, be structured into the school year. Fidelity of implementation is important to consider in how effective programs can be, however, because when programs are not implemented as intended this can lead to a lack of program effects and wasted resources (Tobler & Stratton, 1997).

The nature of the program leader is one factor that has been disputed among program evaluators. There is disagreement about who the leaders should be. Leaders are most commonly teachers, followed by peers and police officers (Gottfredson & Wilson, 2003). Incorporating peer leaders in program delivery was shown to produce greater effects through a meta-analysis that compared a dozen peer-led programs to programs without peer leaders (Cujpers, 2002). However, some have found that the positive effects of peer delivery disappear once teachers are also involved in program delivery (Gottfredson & Wilson, 2003).

Project Northland is an example of a multi-component intervention using peer leaders that was implemented with sixth through eighth graders (Perry, et al., 1996; Perry et al., 2002). Twenty-four school districts in rural Minnesota and surrounding communities were randomized to intervention or delayed program conditions. The sample included the class of 1998 in 24 school districts, who were in the sixth grade when the study began. Project Northland utilized social-behavioral classroom curricula, parent involvement, peer leadership opportunities, and community task forces to affect social, intrapersonal, and environmental factors that have been related to adolescent alcohol use (Hawkin et al., 1992). Peer leadership opportunities were provided during implementation in seventh and eighth grades as part of the peer participation program. For example, in seventh grade peers led an 8-week curriculum and a peer participation program that incorporated video vignettes, group discussions, games, problem-solving activities and role-plays.

Project Northland showed significant effects. Eighth graders reported significantly lower levels of alcohol consumption, lower levels of combined alcohol and

cigarette use, lower levels of peer influence to use alcohol and drugs, decreased perceptions of peer alcohol use, greater endorsement of reasons not to use alcohol, greater perceived disciplinary action by the school for drinking and driving, greater self-efficacy to resist alcohol, and increased parent-child communication. Further, Project Northland was most successful when students were young adolescents. When the program was implemented with students in the 11th and 12th grades, it still affected levels of alcohol use, but had no effect on other student-level behavioral and psychosocial factors (Perry et al., 1996; Perry et al., 2002).

Johnson, Holt, Bry, and Powell (2008) included both peer leaders and adult mentors while integrating universal prevention and selected prevention. With this program, they aimed to enhance personal and social competence, school bonding, and prosocial norms using a weekly peer-led curriculum called Peer Group Connection. In addition, a mentoring program, called Achievement Mentoring, was supplemented for students who were at high risk for academic failure. The program significantly improved resistance to peer pressure, reduced tolerance for friends' substance use, and reduced school-related misconduct among those students who were at high academic risk. For those students who were at low academic risk in the treatment group, the program led to a significantly greater ability to make friends as compared to the control group. The program did not have a significant effect on the environmental factor of school bonding. Overall, however, for the higher risk individuals the program was more effective.

Based on both theory and research, incorporating peer leaders in programs could help to promote social influence through improving prosocial norms. However, the research is unclear in determining whether peer leaders can more strongly influence the

peer group than can other types of program leaders. Using adult mentors alone, to whom peers can relate, can also lead to social learning (Bandura, 1977). In YouthFriends, a universal substance use prevention program, youth met individually, in pairs, or in small groups with a mentor on a weekly basis in the school (Portwood, Ayers, Kinnison, Warsi & Wise, 2005). The program aimed to improve attitudes and behaviors related to substance abuse and school, to improve school connectedness, to reduce substance use, and to affect attitudes toward self, adults, and the future.

Portwood et al. (2005) showed that using adult mentors had significant effects on increasing sense of school membership. The researchers used a pre-test and post-test control group design to examine the results of YouthFriends across five school districts. Further, for those students who had lower baseline scores, the program also led to increased community connectedness, increased goal-setting, and higher academic performance. Program effects were not seen with regard to substance use. The researchers pointed to the impractical use of substance use prevention in this study, since the levels of substance use in the sample were low at baseline. However, the program was still effective in developing protective factors, such as school connectedness, which have been found to promote normal adjustment and reduce the negative effects of stressful life circumstances (Hawkins et al., 1992).

Taken together, the research suggests that school-based substance use prevention programs can effectively reduce the risks associated with substance use and other problem behaviors. Programs should provide opportunities for increased communication amongst peers, should target youth, and should focus on students that are at heightened risk. In addition, programs should focus on developing protective factors, such as through

promoting bonding to prosocial peers and promoting prosocial norms. Peer leadership may be an effective means with which to achieve social influence, which is one of the most important mediators in substance use prevention programming. However, including adult mentors in programming has been more effective in promoting school bonding, and also appears to be an important part of prevention programming.

Brief Description of the Peer Prevention Project

Peer Prevention Project (PPP)¹ is a comprehensive, school-based substance use prevention program that includes a peer leader component. The program aims to apply effective techniques identified through research on substance use prevention. For example, the program addresses risk and protective factors that have been identified as mediators in substance use and other school problems. PPP focuses on developing knowledge of substances and consequences of use, refusal skills, and the development of individual competence and life skills. The program is also a normative approach in its attempt to affect peer group dynamics and perceived peer norms (Bonny, Britto, Klostermann, Hornung, & Slap, 2000; Maddox & Prinz, 2003; Scheier, 2001).

As compared to other programs, where peers are utilized to help teach the curriculum to same-age peers (e.g., Project Northland, Perry, et al., 1996), PPP utilizes a mentoring model based on principles of social learning theory (Bandura, 1977). Adult advisors provide leadership development and substance use prevention programming to eighth grade students (peer leaders), who then provide mentoring and substance use prevention outreach to sixth grade students (outreach students).

PPP was first developed following a statewide survey in New York² in 1995 that revealed an increase in access to alcohol, tobacco, and marijuana amongst seventh and eighth graders. Moore³ (1997) developed the program, capitalizing on the use of mentoring relationships, in order to promote a positive school climate and reduce drug use initiation in middle school students. School Program Initiatives⁴, a community organization that implements various prevention programs in schools, has been responsible for implementing PPP.

Peer Prevention Project Evaluations

During the first four years that PPP was evaluated, program implementation and data collection occurred internally in the schools (School Program Initiatives, 2001). Pre- and post-testing of students, surveys of students and advisors, on-site observations, interviews, and focus groups were utilized to evaluate program effects. Following program participation, peer leaders and outreach students' rates of substance use did not increase, indicating that the program may have delayed onset of use. Peer leaders demonstrated significantly lower rates of tobacco use compared to a no-treatment comparison group. Moreover, the program demonstrated positive effects on students' ability and desire to discuss substance use issues with peers, on perceptions of student efficacy to affect substance use, and on perceived risk of substance use. Finally, school

climate was demonstrated to be a mediating factor in program success. Positive perceptions of school climate were associated with lower rates of alcohol, tobacco, and marijuana use, greater perceived risks of substance use, a positive change in perceptions of peer use, and greater abilities to identify peer and adult resources to handle substance use issues (School Program Initiatives, 2001).

Evaluations conducted from 2002-2004 further examined rates of substance use, delayed onset of use, school climate, and self-efficacy amongst peer leaders and outreach students when compared to a no-treatment comparison group (School Program Initiatives, 2004). PPP had a positive effect on outreach students' tobacco use and appeared to successfully delay onset of substance use in both treatment groups. Furthermore, peer leaders demonstrated a significant improvement in self-efficacy compared to the comparison group. Peer leaders felt strongly that they had the ability to make positive changes in their school. Peer leaders' perceptions of school climate did not change significantly from pre-test to post-test, but were significantly more positive compared to the comparison group. Outreach students did not demonstrate a significant change in perception of school climate, increase in substance use, or self-efficacy as a result of participating in the program.

In 1997 to 2004, schools found it too difficult to identify experimental and control groups and randomization was not used (School Program Initiatives, 2004). In addition, power and magnitude of effect were not assessed, and sample sizes may not have been large enough. Other limitations in the 2002-2004 evaluations were also identified. For example, the question that assessed substance use did not indicate a time frame for use, therefore individuals may have answered the question similarly at pre-test and post-test

rather than reporting decreased use. In addition, substance use rates were low at the onset of the program making the program's effect on substance use difficult to assess.

Despite these limitations, looking across these seven years of research the results suggest that the program exerted more positive effects on peer leaders than on outreach students. Peer leaders demonstrated greater improvements in perceptions of school climate and self-efficacy across studies, and perceptions of school climate were demonstrated to mediate substance use risk factors and behaviors. Thus, while reductions in substance use, with the exception of tobacco use, were not evident the program showed greater benefits to the eighth grade peer leaders. Limited exposure to the program by the outreach students may have contributed to their lack of program effects, given that peer leaders met with adult advisors weekly for 90 minutes, while outreaches only occurred 4 to 5 times throughout the school year (School Program Initiatives, 2004).

The first randomized control trial of PPP was initiated in 2005-2006 across three schools. School Program Initiatives (2006) evaluated the effect of the program on only the eighth grade students, who served as peer leaders during that school year, because of the lack of programmatic effects found with the outreach group, budgetary constraints, and reports from previous adult advisors that reported the program seemed to demonstrate the strongest effects with peer leaders (K. Butterfield, personal communication, May 22, 2008). The 2005-2006 evaluation assessed the program's effects on social competence, problem behaviors, external assets (support, empowerment, boundaries and expectations, and constructive use of time) internal assets (commitment to learning, positive values, social skills, and positive identity) of peer leaders across five contexts (school, personal, family, social, and community), attitudes and knowledge

about substance use, grade point average (GPA), and disciplinary records. The evaluation included student and parent reports (School Program Initiatives, 2006).

Peer leaders showed greater perceived dangers of marijuana use. In one school, peer leaders also demonstrated improved social skills and decreased problem behaviors as well as a significant improvement in math grades. There were no significant differences in external or internal assets across contexts, knowledge, or attitudes. However, peer leaders were able to answer more factual questions about drugs correctly. Due to insufficient data, parent and community ratings of social skills and problem behaviors, as well as data on disciplinary problems could not be evaluated (School Program Initiatives, 2006).

The following year, a second randomized control trial was conducted that minimized the problems of attrition and insufficient data evident in the 2005-2006 program evaluation (School Program Initiatives, unpublished manuscript, 2007). This evaluation was conducted to test, document, evaluate, and revise processes and program content. In addition, School Program Initiatives attempted to conduct the research according to standards of the National Registry of Evidence-based Programs and Practices (NREPP). Funds were procured to conduct a 4-year longitudinal study of the program.

In the first year of this longitudinal study, measures assessed internal and external assets across multiple social contexts, sense of school membership, and school records (grades, attendance, state achievement scores, and disciplinary records) before and after the program was implemented. Fidelity measures of student and advisor attendance, as well as meeting sessions, were also evaluated. Without outside data from parents and the

community, the program evaluators intended to reduce problems with insufficient data. In addition, this program evaluation was implemented in five schools to increase sample size.

The 2006-2007 evaluation yielded positive results for advisor training and program fidelity (School Program Initiatives, 2007). All but one school demonstrated a high level of fidelity. Curriculum fidelity as well as dosage either met or exceeded the program's goals. Results of the program demonstrated significant improvements in value of helping others, sense of feeling appreciated by others, and attendance in two schools. However, while positive changes were observed as a result of program participation, more sensitive measurement tools were deemed necessary in order to better assess changes in attitudes and behaviors regarding substance use, and beliefs about peer substance use (School Program Initiatives, 2007).

The Current Study

The current study evaluated archival data from the second year of implementation in a 4-year longitudinal study conducted by School Program Initiatives (see Appendix A for letter granting permission). The study intended to build upon the strengths and correct the weaknesses identified in previous program evaluations. Survey items recommended by the Center for Substance Abuse Prevention (2003) were utilized to improve detection of attitude and behavioral changes in program participants. It was hypothesized that the eighth graders who received the program would demonstrate greater improvement on

outcome measures than eighth graders who did not receive the program. If program effects existed, the analyses would investigate whether these effects varied by gender and socioeconomic status (SES).

CHAPTER II

Method

Sample

A large school district located in an urban, ethnically diverse, low-income community contacted School Program Initiatives in 2006 and inquired about tobacco prevention programs. Eighth graders from four middle schools in the district were chosen to participate in the study. A potential sample of 219 students was identified. The treatment group contained 111 students and the control group contained 108 students. The method of assignment will be described later. The parents of 21 students did not provide consent, which reduced the sample size to 198. Attrition then resulted from students discontinuing treatment or being absent from school during data collection. Individuals who did not complete both the pre-test and post-test survey instruments were not included in the statistical analyses. After attrition, there were 170 participants remaining in the study.

The final sample ($N = 129$) included participants with complete data on all of the variables. Fifty-two percent of the sample was in the control group and 48% was in the treatment group. Fifty-two percent were male and 48% were female. Seventy-five percent of the sample was eligible to receive free lunch, indicating lower SES. The ethnicity of the sample was 77% Latino, 8% Black, 6% White, and 2.5% Multiracial. School 1

had 51% ($n = 18$) in the control group and 49% ($n = 17$) in the treatment group. School 2 had 61% ($n = 17$) in the control group and 39% ($n = 11$) in the treatment group. In School 3, there were 44% ($n = 7$) in the control group and 56% ($n = 9$) in the treatment group, and in School 4 there were 50% ($n = 25$) in the control group and 50% ($n = 25$) in the treatment group. Based on a MANOVA power table provided by Stevens (1980), with between 50 to 100 participants in each group the study had between 88% to nearly 100% power of detecting a medium effect with five dependent variables, which was the highest number that was included in any of the statistical tests.

Design

Eligible eighth grade students for the 2007-2008 academic year included those who had parental consent and provided assent to participate in the program and research protocols. Students whose parents did not provide consent were still able to participate in the program, although data were not collected on these individuals. Three exclusionary criteria were applied. First, students who received an in-school or out-of-school suspension for a violent act during the 2006-2007 school year were not eligible to participate in the universal prevention program. These students were viewed as in need of interventions to cease delinquent behavior not prevention programs to prevent such behavior. Next, students enrolled in English as a Second Language (ESL) courses were not eligible for inclusion in the study, since the program was not designed to be bilingual and assumed a

certain level of English fluency. Finally, individuals eligible for special education, who were not included in the regular education curriculum due to special education needs including limited cognitive abilities or reading and writing deficits, were not expected to succeed in the program.

A faculty coordinator at each school was responsible for obtaining a list of all the seventh graders from the 2006-2007 school year who met the eligibility criteria. The lists of students were alphabetized and stratified by gender, and then randomly assigned to treatment and control groups within each school. Randomization was completed separately for the students in each stratum. The students in each stratum were numbered in order down the list. A table of random numbers was used to select a starting point by blindly dropping a finger down onto the table. The number on the table that corresponded to the number on the list determined the first student. The next student on the list was automatically paired with the first student. The first student in the pair was randomly assigned to the treatment or control group, and the second student in that pair was automatically assigned to the opposite condition. For example, if student 1 was assigned to the treatment group, then student 2 from the same pair was automatically assigned to the control group and vice versa. Following the numbers across the row from the original starting point, the next number on the table was used to determine the next pair, and the same procedure was followed until all students within a given stratum had been assigned. A designated school faculty coordinator in each school notified the students of their assignment to the intervention or control group for the 2007-2008 academic year.

All students who had been randomized into the treatment or control groups were invited to meetings during the school day, informed of the study, and asked to assent to participation. Youth assent letters were provided to participants during these meetings. After the students had been randomly assigned to be in either the treatment group or the control group, their parents were sent one of two consent letters, one for the control group participants and one for the treatment group participants, outlining the study and the students' responsibilities. This letter was a passive consent letter; parents were asked to contact the researchers if they did not want their child to participate. Program participants either received the substance abuse prevention program or participated in a no-treatment, minimal-contact, control intervention.

Components of the Peer Prevention Project

The program components included: program implementation and staff development, student intervention activities, and a no-treatment, minimal-contact control intervention. A description of these components is as follows:⁷

Program Implementation and Staff Development

Stakeholder team orientation.

An orientation was held in the spring of 2007 with school and community stakeholders, referred to as the stakeholder team, for the purpose of building capacity in order to support and sustain the program in the schools. Stakeholders included administrators, community representatives (e.g., municipal alliance, PTA, BOE), and student support personnel (e.g., counselors). The stakeholder team provided support and

supervision to the faculty advisor team. During the training, which occurred across a single day, the team began preliminary steps of program implementation and developed a shared vision of how this would be accomplished.

Implementation training.

The faculty advisors across program implementation sites participated in three advisor trainings, which were scheduled throughout the school year. First, two days were spent training faculty advisors and developing the advisor team. Faculty advisors were trained to execute an effective retreat for peer leaders, lead successful weekly meetings with peer leaders, effectively utilize the curriculum, and understand and comply with the program and evaluation design and protocol. Two one-day trainings allowed faculty advisors to collaborate with other members of the PPP network, to share successes and challenges, and to gain support and skills to sustain the program in their schools.

Stakeholder meeting.

Stakeholders assessed their school's progress with the program during a mid-year meeting, problem-solved challenges, and planned for the remainder of the school year.

School-wide in-service.

A school-wide in-service training was held for all faculty from each participating school. This training was intended to facilitate the gaining of perspective and insight on the subject of character education in classroom and school-wide contexts. Faculty considered new tools to foster character education in their classrooms in order to support the enhancement of school climate.

Technical assistance.

Technical assistance was provided to participating schools throughout the school year to address challenges and concerns experienced during program implementation. This support was also intended to maintain program fidelity. Technical assistance was provided to each school a minimum of two days per month. Consultation was provided on an as-needed basis to faculty advisors and stakeholders.

*Student Intervention Activities**“Seeds”.*

Four “seeds”, or eighth graders with good leadership skills, were identified by the faculty advisors in each school and placed into treatment groups. These participants were considered part of the program and their data were excluded from the analyses.

Retreats.

Faculty advisor teams led two retreats for participating eighth grade peer leaders at their respective schools. Retreat #1 was held in September shortly after the program began and was a student orientation to the program. Peer leaders were acquainted with one another and with faculty advisors and developed teams to effectively work together in a safe, supportive, fun environment. In addition, peer leaders were provided with opportunities to consider the meaning of a role model, to explore assumptions and questions about tobacco, alcohol, and other drugs, and to consider their potential effect on the young people’s lives with whom they would conduct outreach.

Retreat #2 was held off-site during the middle of the school year. During this

retreat, peer leaders shared the successes and challenges that they faced in the program, explored how added pressure and stress could affect their ability to work together, examined their influence on younger peers during outreaches, and strengthened connections between peer leaders and faculty advisors.

Weekly meetings.

For 80 minutes a week, faculty advisors met with peer leaders and implemented a two-volume curriculum designed to help them develop leadership tools and a knowledge base of substance use issues. Weekly meetings were held during the regular school day during non-academic periods (e.g., study hall or gym). Volume 1 was used from September through December, and prepared peer leaders to conduct outreach with the sixth graders. This volume included 16 activities that were each 40-minutes in length, focusing on helping students to feel personally engaged, as well as engaged with their peers and the program, developing the peer leader team, exploring students' attitudes about substances, honing leadership and facilitation skills, and building a knowledge base about substances. Special activities were also provided in Volume 1 to bolster the basic curriculum, as needed, by each group. These activities included the celebration of each other, addressing conflict in the group, additional information about drug addiction, and a variety of ways to develop students' facilitation skills. Finally, Volume 2 of the curriculum contained the advisor's guide to conducting outreach, which is explained in more detail in the outreach section below.

Substance abuse prevention awareness day.

An annual event was held in the fall for all new schools across the state involved in the program. During this event, prevention outreach was highlighted through student-led workshops and special performances designed to enable participants to experience outreach activities firsthand, and build on their presentation and leadership skills.

Winter parent-child event.

Faculty advisors facilitated a night of activities for peer leaders and their families as an introduction to the program, and this event was intended to improve communication between parents and children, to raise the issue of substance use in family discussions, and to integrate families into the program.

Spring parent-child event.

See below under no-treatment, minimal contact control condition.

Outreaches.

Peer leaders conducted outreaches with sixth grade students with support from faculty advisors from December through June. Each outreach was 40 minutes in length and was held during the school day. Outreach students were identified through a compulsory class (e.g. health class) in order to reach a broad and representative group of students. One or two peer leaders worked with 25-30 outreach students in each group. There were a total of five outreaches recommended in the Volume 2 curriculum. Participating schools were required to conduct outreaches 1, 2, and 5 at a minimum.

The purpose of the outreaches was to teach younger students facts about drugs, good decision-making skills, and refusal skills. Five drugs highlighted in the outreaches

included tobacco, alcohol, marijuana, inhalants, and a combination of over-the-counter and prescription drugs. During weekly meetings with adult advisors, the peer leaders prepared for outreach, learned the outreach activities, experienced the outreach, debriefed the outreach, honed their skills and strengthened the team.

No-Treatment Minimal-Contact Control Intervention

Spring parent-child event.

The control group attended an evening event with peer leaders from the treatment group, and parents from both groups, to prepare them for the transition into high school. This event was held at the school and included a dinner and a program celebrating the completion of middle school. At this event, students and parents explored what it meant to be a peer leader, gained practice being a peer leader, and connected with their peers. Games and incentives were included for all attendees.

Data Collection

Treatment and control groups in each school met with program coordinators and faculty advisors to complete outcome measures before and after program implementation, in September 2007 and June 2008, respectively. Surveys contained unique identification numbers for each student. Identifying information was removed after the survey responses had been recorded. Instructions were presented and confidentiality was explained to participants prior to survey completion. Surveys took approximately one hour to complete.

Students answered demographic questions on a cover sheet regarding their gender during the pre-test, and responded to a cover sheet question about their ethnicity during the post-test. After completing the post-test survey, both the treatment and control groups were provided with pizza for participating in the program and completing the research instruments. Program coordinators met with a faculty coordinator at each school and collected school records and eligibility for free and reduced lunch data in June 2008.

During this study, School Program Initiatives also collected fidelity observational and focus group data. Fidelity observations occurred throughout the school year. Faculty advisors completed checklists to record attendance and participation in the program. In addition, School Program Initiatives conducted focus groups with peer leader groups and faculty advisors in each school after the program was completed to evaluate their perceptions and experiences as peer leaders, perceptions of the program's strengths and weaknesses, and ideas for improving the program. Fidelity and focus group data are beyond the scope of the current study and will not be evaluated.

Measures

The survey instrument contained 83 items designed to measure a variety of constructs that have been shown to be mediators of resistance to alcohol and substance abuse. Survey questions were obtained from the Center for Substance Abuse Prevention (Curie & Perry, 2003). For subscales that reported validity, this information is provided below. Reliability information is discussed in a later section.

Assertiveness

Assertiveness was measured with 9 items. Students responded to a 5-point scale indicating the likelihood that they would behave assertively in a variety of situations. For example, they reported how likely they would be to “Tell people what you think, even if you know they will not agree with you.” Higher scores indicated higher levels of assertiveness. No validity information was reported for this instrument.

Decision-making

Decision-making was assessed by 4 items that required students to indicate, on a 4-point scale, how often they engage in good decision-making. For example, they answered, “How often do you stop to think about your choices before you make a decision?” Higher scores indicated better decision-making skills. Validity information was unavailable.

Goal Setting

Goal setting was assessed by 6 items. Students indicated how often, or how strongly they felt, regarding each item on a 4-point scale. For example, students were asked, “How often do you work on goals you have set for yourself?” Higher scores denoted higher goal-setting behavior. No validity information was available.

Social Skills

Social skills were assessed by 5 items. Students responded to how strongly they agreed with each item on a 4-point scale. For example, students were asked to respond to the item “It is easy for me to make new friends.” High scores indicated better social skills. No validity information was available for these items (McNeal & Hansen, 1999).

Assistance Skills

Assistance skills were evaluated with 5 items. The response scale varied from 4-points, 5-points, or 6-points. Students indicated how frequently they engaged in a helpful behavior. For example, they indicated how many times they had given friends advice to help them solve a problem in the last 30 days. Higher scores indicated higher assistance skills. No validity information was available.

Educational Expectations and Aspirations

Only 4 out of the 5 original items were chosen for inclusion by School Program Initiatives and, therefore, these constituted the measure of educational expectations and aspirations. Students indicated their likelihood of accomplishing various future achievements on a 4-point scale. For example, they indicated how likely they would be to graduate from college. Higher scores indicated higher educational expectations and aspirations. High face validity and predictive validity were reported.

Resistance to Peer Pressure

Resistance to peer pressure was assessed with 5 items on a 4-point scale that evaluated how easy it was for students to resist peer pressure to engage in deviant behaviors. For example, students were asked about the likelihood of responding negatively to a person their age who wanted them to get into trouble in school, do something wrong, or use substances. Higher scores indicated greater resistance to peer pressure. Validity information was not available.

Perceived Harm/Risk of Substance Use

Perceived harm or risk of substance use was measured with 5 items from the original 13-item subscale, which was decided by School Program Initiatives. Attitudes and beliefs regarding alcohol, tobacco, and other substance use were evaluated. Students were asked how much risk they felt was associated with substance use on a 5-point scale; however, points 1-4 indicated level of associated risk and point 5 indicated a lack of familiarity with the substance. The recoding of these items is discussed in the later section on data preparation. Higher scores indicated greater perceived harm or risk of substance use. No validity information was available for these items.

Disapproval of Substance Use

Disapproval of substance use was measured with 4 items from the original 13-item subscale as decided by School Program Initiatives. Students reported whether they believed it was wrong to use different substances on a 4-point scale. Higher scores indicated greater disapproval of substance use. No validity information was available for these items.

Commitment to Not Use Drugs

Commitment to not use drugs was measured with 4 of the original 13 items as decided by School Program Initiatives. Students answered, “true,” “maybe,” or “false” in response to questions regarding their attitudes and beliefs about substance use. Higher scores indicated greater commitment to not use drugs. No validity information was reported.

Beliefs about Peer Norms

Beliefs about peer norms regarding drug use were evaluated with 8 items measuring beliefs regarding peer attitudes and behaviors regarding substance use on either a 4-point or a 5-point scale. Higher scores indicated greater beliefs that peers were against substance use. Evidence about validity was unavailable.

Attitude toward School

Attitude toward school was measured with 6 of the original 9 items, which was decided by School Program Initiatives. Students responded to a variety of 5-point items regarding their feelings about school. For example, students were asked, “How often do you feel that the schoolwork you are assigned is meaningful and important?” Higher scores indicated a better attitude toward school. The subscale reportedly demonstrates a moderately positive relationship to alcohol, tobacco, and other drug use suggesting good construct validity (Arthur, Hawkins, Catalano, & Pollard, 1996).

Perceived Social Support

Perceived social support from teachers or other adults at school was measured by 6 items, on a 4-point scale, that were derived from the Resilience subscale of the California Healthy Kids Survey (Austin & Duerr, 2004). Students answered how true they believed statements were regarding teachers and other adults at school. For example, students indicated how true it would be that teachers and other adults really care about them. Higher scores denoted greater perceived social support. No validity information for this measure was reported.

Alcohol Use

Alcohol use was assessed with 3 items from the original 5-item subscale, which was decided by School Program Initiatives. These items assessed alcohol use within the last 30 days, and age of first trying alcohol, on a 2-pt., 7-pt., and 8-pt. scale. Higher scores indicated less alcohol use. No validity information was available.

Marijuana Use

Marijuana use was assessed using 3 items that were originally part of a 4-item subscale as decided by School Program Initiatives. These items assessed marijuana use within the last 30 days, as well as age of first trying this drug, on a 2pt., 7 pt., and 8pt. scale. Higher scores indicated less marijuana use. No validity information was available.

Cigarette Use

Cigarette use was assessed via 4 items that were originally part of an 11-item subscale, as decided by School Program Initiatives, and were on a 2-pt., 7-pt., or 8-pt. scale. These items assessed cigarette use within the last 30 days, as well as age of first trying this drug, and how much the individual smoked. Higher scores indicated less cigarette use. No validity information was available.

Inhalant use

Inhalant use was assessed with 2 items, on a 2-pt. and 8-pt. scale, inquiring as to whether or not the individual ever “sniffed” or “huffed” a substance, and at what age they tried this substance. Higher scores indicated less inhalant use. Evidence for good construct validity was reflected by strong correlations with use of other drugs, use of tobacco, peer alcohol use, poor school adjustment, and family problems.

GPA

Literacy, math, and science grades were converted to a 5-pt. scale; grades of A, B, C, D, and F corresponded to the points 1-5, respectively. First marking period grades were averaged to obtain pre-test GPA scores, and fourth marking period grades were averaged to obtain post-test GPA scores. A higher score indicated a lower GPA; see the data preparation section for further explanation.

Absences

The total number of unexcused absences for the first through the fourth marking periods was obtained as a post-test score.

Tardies

The total number of tardies for the first through the fourth marking periods was obtained as a post-test score.

Suspensions

The total number of out-of-school suspensions for the first through the fourth marking periods was obtained as a post-test score. Since not all schools utilized in-school suspensions, only out-of-school suspensions were evaluated.

School

Eighth graders in four middle schools were evaluated in the study. School was entered as a covariate to control for differences across schools.

Data Preparation

The independent variables in the study included condition, gender, and SES. Ethnicity was not examined because there were not enough participants to include a fourth independent variable. There were 21 dependent variables: 17 subscales from the survey instrument, absences, tardies, GPA, and suspensions. The 21 dependent variables were organized into 5 domains that corresponded to generic skills, affective skills, school bonding, substance use, and behavioral outcomes (see Table 1). Covariates included the pre-test scores for each dependent variable and school.

Data analysis was conducted using separate 3-way Multivariate Analyses of Covariance (MANCOVA) to evaluate the effects of treatment, and whether treatment interacted with gender or SES while controlling for the covariates (pre-test scores and school). For example, to examine program effects on the generic skills domain, condition and the interaction of condition with gender and SES were evaluated while controlling for pre-test generic skills' scores and school.

In order to prepare the data for analysis, all nominal variables were coded into quantitative variables. These variables included gender, condition, SES, and GPA. The survey instrument was examined to ensure that subscale items were reverse-scored and oriented in the same direction. All subscales within the same domain were oriented in the same direction, and so that they could be interpreted positively, with the exception of the behavioral domain. Since absences, tardies, and suspensions are negative outcomes, GPA was reverse-scored so that it could also be negative. Several subscales had abnormalities, including inconsistent point-values across items within a subscale. These subscales are discussed below.

Table 1
Domains and Corresponding Dependent Variables

Domain	Dependent Variables
Generic Skills	Assertiveness Decision-making Goal-setting Social skills Assistance skills Educational Expectations and Aspirations
Affective Skills	Refusal skills Perceived harm or risk of substance use Disapproval of substance use Beliefs about peer norms Commitment to Not Use Drugs
School Bonding	Attitude toward school Perceived social support
Substance Use	Alcohol use Marijuana use Cigarette use Inhalant use
Behavioral Outcomes	GPA Absences Tardies Out-of-School Suspensions

The Perceived Harm or Risk of Substance Use subscale was on a 1-5 point scale. The 5th pt. of this scale indicated a lack of familiarity with the drug in question, while points 1-4 related to strength of perceived harm or risk. The 5th pt. was declared a missing value. Students who rated an item as a 5 were not penalized for lack of familiarity with the substance. An average score was created for each individual by dividing total scores by the number of answered items.

The Beliefs about Peer Norms subscale had varying point scales across items. For example, one item was on a 4-pt. scale, while another item was on a 5-pt. scale. Similarly, the Assistance Skills subscale had items that varied from a 4-pt., 5-pt., or 6-pt.

scale. Each item was converted to a z-score to standardize the items on these subscales before totals were calculated.

On each of the substance use subscales, items were on different point scales. For example, one item used a 2-pt. scale, while another used a 7-pt. scale. Individual items were converted to z-scores to standardize the items on each subscale. In addition, on every substance use subscale there was one item that had an 8-pt. scale where points 2-8 corresponded to age of first trying the substance. Higher points indicated older ages of first trying the substance; however, the 1st pt. in the scale meant that the substance had never been tried and was inconsistent with the other points. Points on this item were recoded so that the 1st pt. became the 9th pt. Subsequently, each point was recoded to become one point lower on the scale (e.g., the 9th pt. became the 8th pt., the 8th pt. became the 7th pt., etc.). Thus, the item remained on an 8-pt. scale.

Reliability of Survey Instrument

Across subscales, coefficient alpha was calculated to evaluate inter-item reliability. In addition, test-retest reliability was examined by calculating correlation coefficients for the control group's scores from pre-test to post-test on each subscale. See Table 2 for reliabilities reported on the SAMHSA website and reliabilities obtained from the current sample.

Upon reviewing the reliability data, it appeared that two subscales had poor reliability. Educational Aspirations, whose original reliability was not available, was found to have poor inter-item reliability ($\alpha = .45$) even after dropping a weak item ($\alpha = .10$) from the subscale. In addition, this subscale had poor test-retest reliability

($r = .23$). The Commitment to Not Use Drugs subscale, which also did not have a reported reliability, had poor inter-item and test-retest reliabilities ($\alpha = .40$; $r = .10$). As such, these two subscales were omitted from statistical analyses. It should be noted that although some of the other subscales had weak items, dropping items would not have resulted in a higher coefficient alpha; thus, no items were removed from these subscales.

Table 2
Reported and Obtained Reliabilities of the Survey Instrument (N = 129)

Variable	Reported Reliability r^a	Inter-item Consistency α	Test-Retest Reliability r^e
Assertiveness	.82	.57	.61
Decision-Making	.70	.67	.30
Goal Setting	.64	.80	.65
Social Skills	.63	.69	.53
Assistance Skills ^d	.71	NA	.41
Educational Aspirations	NA	.45	.23
Resistance to Peer Pressure	.90 ^c	.85	.24
Perceived Harm/Risk of Substance Abuse ^f	NA	.93	.24
Disapproval of Substance Use	NA	.63	.58
Commitment to Not Use Drugs	NA	.40	.10
Beliefs about Peer Norms ^d	.88	NA	.59
Attitude Toward School	.76	.62	.51
Perceived Social Support ^b	NA	.82	.33
Alcohol Use ^d	NA	NA	.58
Marijuana Use ^d	NA	NA	.12
Cigarette Use ^d	NA	NA	.20
Inhalant Use ^d	NA	NA	.11

Note. NA = not available.

^aReliability obtained from www.preventionplatform.samhsa.gov. Values represent test-retest reliability (except as noted); no time intervals were reported.

^bThis scale obtained from www.wested.org; no reliability was reported.

^cCoefficient alpha was reported for this subscale (Bandura, 1990).

^dSubscale total was converted to a z-score; inter-item consistency could not be reported.

^eTime interval was 10 months.

^f $n = 128$ for this subscale.

GPA Variable

Math and science courses across all four schools included congruent curricula, but this was not the case with social studies and literacy courses. Since, two schools included a social emotional component in their social studies curricula and two schools did not, social studies was not included in the GPA scores. In addition, two schools had literacy courses, whereas the two other schools separated the reading and writing components of the literacy course into two separate courses (language arts and reading). Grades in the two separate courses, language arts and reading, were averaged together using person-specific denominators to account for missing scores in order to create a comparable literacy score. The language arts and reading pre-test scores, as well as the post-test scores, were significantly correlated ($r = .59$) indicating that this procedure was appropriate. To calculate GPA, math, science, and literacy grades were averaged across the first marking period for pre-test scores, and the fourth marking period for post-test scores, using person-specific denominators to account for missing grades.

Outliers

For all of the dependent variables, frequencies, stem and leaf plots, and boxplots were used to examine for outliers. Outlier scores that were four or more standard deviations from the mean, and were not near to other points in the distribution, were closely examined. For two outliers on the absence variable, a bivariate scatterplot of two significantly correlated variables, absences and GPA, ($r = .27; p < .05$), determined that one score was still an outlier in the distribution. Thus, it was removed from the analysis.

CHAPTER III

Results

Descriptive Statistics

The means, standard deviations, potential and actual ranges, and skew of each dependent variable were computed (see Table 3).

Pre-test Comparisons

A series of 2 (condition) x 2 (gender) x 2 (SES) multivariate analyses of covariance (MANCOVA) were conducted to determine the pre-test comparability of the treatment and control groups across the four domains of generic skills, affective skills, school bonding and substance use while controlling for school. Separate MANCOVAs were conducted for each pre-test domain comparison. In addition, a 2 (condition) x 2 (gender) x 2 (SES) analysis of covariance (ANCOVA) was run to assess differences between the conditions at pre-test on GPA with school as a covariate.

Pre-test comparisons revealed a statistically significant interaction between condition and SES on affective skills, $F(4, 116) = 2.98, p = .02$, partial eta squared = .09. Considering the dependent variables separately, with a Bonferroni adjusted alpha level (.05/4 = .01), refusal skills, $F(1, 119) = 7.60, p = .01$, partial eta squared = .06, and disapproval of substance use, $F(1, 119) = 6.75, p = .01$, partial eta squared = .05, were

Table 3
Descriptive Statistics of Key Outcome Variables at Pre-test (N =129)

Variable	<i>M</i>	<i>SD</i>	Range		Skew
			Potential	Actual	
Generics Skills Domain					
Assertiveness Total	36.90	4.21	9-45	23-45	-.71
Decision-Making Total	11.67	2.27	4-16	5-16	-.10
Goal Setting Total	18.99	3.40	6-24	7-24	-1.29
Social Skills Total	16.74	2.56	5-20	8-20	-1.24
Assistance Skills Total	.00	3.40	NA	-6.56-8.45	.39
Affective Skills Domain					
Resistance to Peer Pressure Total	17.33	3.37	5-20	5-20	-1.67
Perceived Harm/Risk Average ^a	2.94	1.03	1-4	1-4	-.94
Disapproval of Substance Use Total	14.78	1.63	4-20	8-16	-1.67
Beliefs about Peer Norms Total	.00	4.90	NA	-17.60-5.45	-1.20
School Bonding Domain					
Attitude Toward School Total	23.81	3.14	6-30	15-30	-.62
Perceived Social Support Total	20.21	3.49	6-24	9-24	-1.29
Substance Use Domain					
Alcohol Use Total	.00	2.42	NA	-8.32-1.72	-1.19
Marijuana Use Total	.00	2.64	NA	-19.44-.54	-5.40
Cigarette Use Total	.00	2.95	NA	-23.84-1.01	-5.09
Inhalant Use Total	.00	1.89	NA	-8.44-.54	-3.48
Behavioral Domain					
GPA	2.41	.85	1-5	1.00-4.33	.37

Note. NA = not available.

^a*n* = 128 for this subscale.

statistically significant. Effect sizes were small for disapproval of substance use and medium for refusal skills. High SES participants in the treatment group had significantly greater refusal skills ($M = 18.30$, $SE = 1.08$) and disapproval of substance use skills ($M = 15.90$, $SE = .40$) as compared to the refusal skills ($M = 14.56$, $SE = 1.12$) and disapproval of substance use skills ($M = 14.32$, $SE = .42$) of those high SES participants in the control group. In addition, there were statistically significant differences in refusal

skills between those with high versus low SES in the control group. Low SES individuals had significantly higher refusal skills ($M = 17.57, SE = .52$) than did those with high SES ($M = 14.52, SE = .95$) (see Figures 1 and 2).

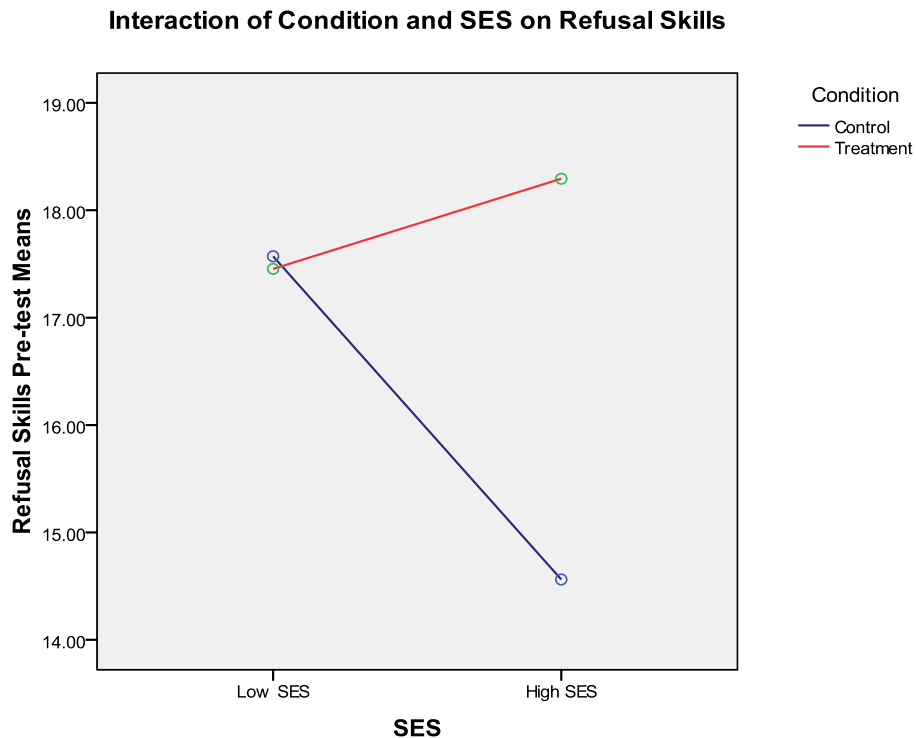


Figure 1. Interaction of condition and SES on refusal skills.

There were also gender differences on GPA observed at pre-test, $F(1, 120) = 4.20, p = .04$, partial eta squared = .03. Males ($M = 2.56, SE = .12$) had slightly higher GPAs than females ($M = 2.19, SE = 1.92$). Groups were considered equivalent on all other dependent variables at pre-test (see Tables 4a, 4b, 4c, 4d, and 4e).

Preliminary assumption testing revealed significant findings for Levene's Test of the Equality of Error Variances on the generic skills, affective skills, school bonding, and substance use domains. In the generic skills domain, the error variances for decision-making were not equivalent across conditions at pre-test, $F(7, 121) = 2.05, p = .05$.

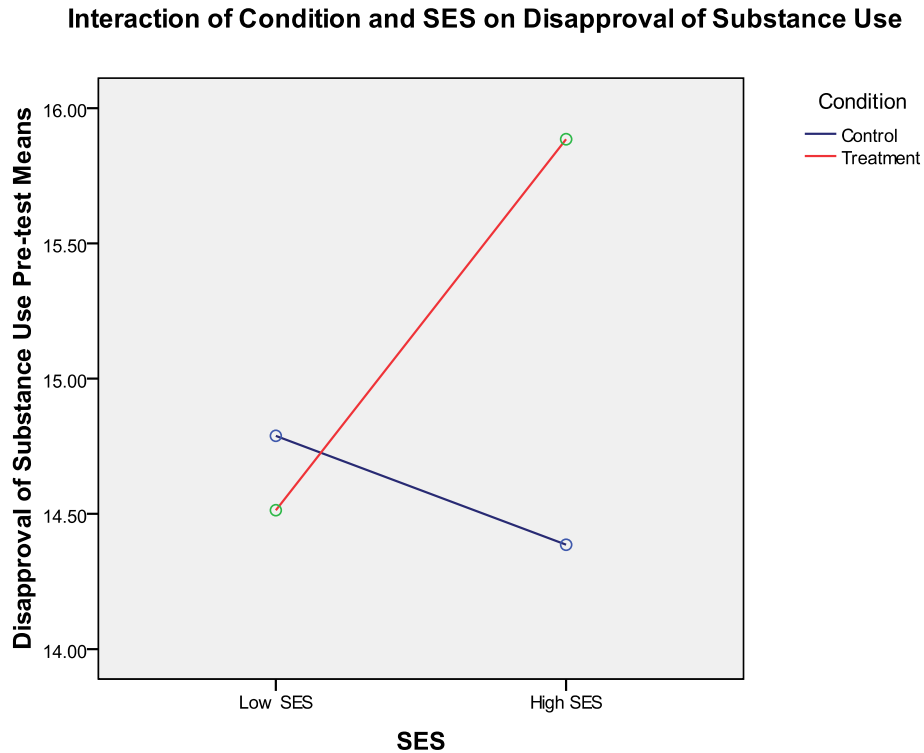


Figure 2. Interaction of condition and SES on disapproval of substance use.

In the affective skills domain, error variances for refusal skills, $F(7, 120) = 2.71, p = .01$, disapproval of substance use, $F(7, 120) = 2.31, p = .03$, and perceived harm/risk of substance use, $F(7, 120) = 2.34, p = .03$, were not equal across conditions. In the school bonding domain, error variances on the perceived social support variable were not equivalent across conditions at pre-test, $F(7, 121) = 2.15, p = .04$. Finally, on the substance use domain, pre-test scores for cigarette use, $F(7, 121) = 5.21, p < .001$, alcohol use, $F(7, 121) = 23.95, p < .01$, marijuana use, $F(7, 121) = 2.58, p = .02$, and inhalant use, $F(7, 121) = 2.57, p = .02$ were not equal across conditions.

Table 4a
Pre-test Comparison of Generic Skills

Multivariate Test of Covariance

Effect	Pillai's Trace Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.948	424.352	5	116	.000	.948
School	.058	1.425	5	116	.221	.058
Gender	.038	.907	5	116	.479	.038
Condition	.036	.871	5	116	.503	.036
SES	.067	1.675	5	116	.146	.067
Gender*Condition	.020	.481	5	116	.790	.020
Gender*SES	.034	.824	5	116	.535	.034
Condition*SES	.014	.320	5	116	.900	.014
Gender*Condition*SES	.004	.004	5	116	.993	.004

* $p < .05$

Note. Box's M is statistically significant ($p = .02$). Pillai's Trace is reported. Bartlett's Test of Sphericity is statistically significant ($p < .001$).

Table 4b
Pre-test Comparison of Affective Skills

Multivariate Test of Covariance

Effect	Pillai's Trace Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.959	674.188	4	116	.000	.959
School	.035	1.061	4	116	.379	.035
Gender	.066	2.037	4	116	.094	.066
Condition	.069	2.138	4	116	.080	.069
SES	.071	2.208	4	116	.072	.071
Gender*Condition	.035	1.041	4	116	.389	.035
Gender*SES	.052	1.598	4	116	.179	.052
Condition*SES	.093	2.984	4	116	.022*	.093
Gender*Condition*SES	.015	.451	4	116	.772	.015

* $p < .05$

Note. Box's M is statistically significant, ($p < .001$). Pillai's Trace is reported. Bartlett's Test of Sphericity is statistically significant ($p < .001$).

Table 4c
Pre-test Comparison of School Bonding

Multivariate Test of Covariance

Effect	Wilk's Lambda Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.081	671.618	2	119	.000	.919
School	.984	.950	2	119	.390	.016
Gender	.971	1.775	2	119	.174	.029
Condition	.966	2.112	2	119	.125	.034
SES	.993	.445	2	119	.642	.007
Gender*Condition	.986	.865	2	119	.424	.014
Gender*SES	.996	.231	2	119	.794	.004
Condition*SES	.998	.105	2	119	.900	.002
Gender*Condition*SES	.992	.457	2	119	.634	.008

* $p < .05$

Note. Bartlett's Test of Sphericity is statistically significant ($p < .001$).

Table 4d
Pre-test Comparison of Substance Use

Multivariate Tests of Covariance

Effect	Pillai's Trace Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.041	1.242	4	117	.297	.041
School	.045	1.393	4	117	.241	.045
Gender	.029	.871	4	117	.483	.029
Condition	.017	.511	4	117	.728	.017
SES	.037	1.129	4	117	.346	.037
Gender*Condition	.034	1.038	4	117	.391	.034
Gender*SES	.046	1.423	4	117	.231	.046
Condition*SES	.044	1.353	4	117	.255	.044
Gender*Condition*SES	.027	.805	4	117	.525	.027

* $p < .05$

Note. Box's M is statistically significant ($p < .001$). Pillai's Trace is reported. Bartlett's Test of Sphericity is significant ($p < .001$).

Table 4e
Pre-test Comparison of GPA

Univariate Analysis of Covariance

Effect	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	6.477	8	.810	1.140	.342	.071
Intercept	119.656	1	119.656	168.440	.000	.584
School	.001	1	.001	.001	.970	.000
Gender	2.986	1	2.986	4.203	.043*	.034
Condition	.040	1	.040	.056	.813	.000
SES	.008	1	.008	.011	.915	.000
Gender*Condition	.596	1	.596	.839	.362	.007
Gender*SES	.491	1	.491	.692	.407	.006
Condition*SES	.220	1	.220	.310	.579	.003
Gender*Condition*SES	2.166	1	2.166	3.049	.083	.025
Error	85.246	120	.710			
Total	840.694	129				
Corrected Total	91.723	128				

* $p < .05$

As indicated by the significant Bartlett's Test of Sphericity in Tables 4a through 4e, the dependent variables were all correlated with one another at pre-test, indicating that a multivariate test should be conducted over separate univariate analyses. To further examine the relationships between the dependent variables at pre-test, Pearson correlations were computed and tested for significance. There was no evidence of multicollinearity across the dependent variables; none of the variables were correlated at .8 or higher (see Table 5).

Table 5
 Bivariate Correlations of Pre-test Scores and Covariate^a (N = 129)

Dependent Variables	Dependent Variables						
	Assertiveness	Decision-Making	Goal Setting	Social Skills	Assistance Skills	Resistance to Peer Pressure	Perceived Harm/Risk of Substance Use
Assertiveness	—						
Decision-making	.17	—					
Goal Setting	.41*	.49*	—				
Social Skills	.39*	.08	.28*	—			
Assistance Skills	.23*	.26*	.16	.20*	—		
Resistance to Peer Pressure	.23*	.35*	.43*	.31*	.15	—	
Perceived Harm/Risk of Substance Use	-.00	.06	.09	-.12	-.13	.07	—

Table 5 Continued
 Bivariate Correlations of Pre-test Scores and Covariate (N = 129)

Dependent Variables	Dependent Variables						
	Assertiveness	Decision-Making	Goal Setting	Social Skills	Assistance Skills	Resistance to Peer Pressure	Perceived Harm/Risk of Substance Use
Disapproval of Substance Use	.07	.32*	.30*	.09	.15	.47*	.09
Belief about Peer Norms	.08	.28*	.38*	.13	.03	.35*	.22*
Attitude Toward School	.21*	.33*	.47*	.09	.12	.36*	-.06
Perceived Social Support	.25*	.28*	.55*	.13	.13	.28*	-.03
Alcohol Use	-.09	-.24*	-.37*	-.13	.09	-.25*	-.16
Marijuana Use	-.03	-.16	-.09	.05	-.09	-.37*	-.17
Cigarette Use	-.15	-.26*	-.21*	-.06	-.08	-.43*	-.17
Inhalant Use	.04	.05	-.10	-.06	-.01	-.07	-.01
School	.15	.14	.10	.09	-.07	.12	.01
GPA	.06	-.03	-.03	-.05	-.01	-.01	-.33*

Table 5 Continued
 Bivariate Correlations of Pre-test Scores and Covariate (N = 129)

Dependent Variables	Dependent Variables				
	Disapproval of Substance Use	Beliefs about Peer Norms	Attitude Toward School	Perceived Social Support	Alcohol Use
Disapproval of Substance Use	—				
Belief about Peer Norms	.09	—			
Attitude Toward School	.33*	.33*	—		
Perceived Social Support	.33*	.35*	.38*	—	
Alcohol Use	-.36*	-.49*	-.19*	-.25*	—
Marijuana Use	-.40*	-.25*	-.09	-.00	.37*
Cigarette Use	-.41*	-.29*	-.19*	-.06	.43*
Inhalant Use	-.06	-.14	-.04	-.05	.11
School	.16	.10	.08	-.07	-.06
GPA	-.18	-.27*	.01	-.04	.06

Table 5 Continued
Bivariate Correlations of Pre-test Scores and Covariate (N = 129)

Dependent Variables	Dependent Variables				
	Marijuana Use	Cigarette Use	Inhalant Use	School	GPA
Marijuana Use	—				
Cigarette Use	.76*	—			
Inhalant Use	-.06	-.03	—		
School	-.14	-.21*	.03	—	
GPA	-.24*	.21*	.01	-.02	—

* $p < .05$ (2-tailed)

^aSchool is the only covariate.

Post-test Comparisons

Main Analyses

To examine for treatment effects at post-test, separate 2 (condition) x 2 (gender) x 2 (SES) MANCOVA tests were run for each of the five domains while controlling for domain pre-test scores and school. For example, in order to examine the individual effects of condition, gender, SES, and their interactions on generic skills at post-test, a MANCOVA was run while controlling for generic skills pre-test scores and school. The results of the 5 main analyses are presented below.

Generic Skills

No main effect was found for condition, $F(5, 111) = 2.07$; however, the probability value was .07. Examining the between-subjects effects, with a Bonferroni adjusted alpha level ($.05/5 = .01$), there were no statistically significant effects on decision-making, $F(5, 111) = .78$, $p = .38$, goal setting, $F(5, 111) = .85$, $p = .36$, assertiveness, $F(5, 111) = .28$, $p = .60$, or assistance skills, $F(5, 111) = 1.30$, $p = .26$. Although the social skills variable was significant, $F(5, 111) = 13.47$, $p = .04$, partial eta squared = .04, it was the control group ($M = 17.20$, $SE = .27$) who had slightly higher scores at post-test than the treatment group ($M = 16.41$, $SE = .27$).

The main effect for gender was statistically significant, $F(5, 111) = 3.70$, $p < .01$, partial eta squared = .14. A test of between-subjects effects, with a Bonferroni adjusted alpha level of ($.05/5 = .01$), demonstrated a statistically significant difference between genders on assistance skills, $F(5, 111) = 6.44$, $p = .01$. Females had significantly higher assistance skills ($M = .90$, $SE = .47$) than males ($M = -.72$, $SE = .42$); however, the interaction effects for condition by gender, $F(5, 111) = 1.70$, $p = .14$, and condition by

gender by SES, $F(5, 111) = .98, p = .43$, were not statistically significant. The main effect for SES was not statistically significant, $F(5, 111) = .45, p = .81$. Interaction effects for gender by SES, $F(5, 111) = .73, p = .61$, and condition by SES, $F(5, 111) = .45, p = .82$, were also not statistically significant.

As expected, all covariate pre-test scores for generic skills were statistically significant, including social skills, $F(5, 111) = 8.10, p < .001$, partial eta squared = .27, decision-making, $F(5, 111) = 2.61, p = .03$, partial eta squared = .11, goal setting, $F(5, 111) = 10.90, p < .001$, partial eta squared = .33, assertiveness, $F(5, 111) = 13.41, p < .001$, partial eta squared = .38, and assistance skills, $F(5, 111) = 4.43, p < .01$, partial eta squared = .17. That is, pre-test scores were related to post-test scores. There were also statistically significant differences found for the covariate school at post-test, $F(5, 111) = 2.79, p = .02$, partial eta squared = .11. That is, schools differed in generic skills, even when pre-test scores were controlled (see Table 6a).

Affective Skills

No statistically significant effects were found for condition, $F(4, 112) = .42, p = .79$, condition by gender, $F(4, 112) = .92, p = .46$, condition by SES, $F(4, 112) = .31, p = .87$, or condition by gender by SES, $F(4, 112) = .66, p = .62$, on affective skills. There were no statistically significant main effects found for gender, $F(4, 112) = .42, p = .79$, or SES, $F(4, 112) = .89, p = .47$, and no interaction effects for gender by SES, $F(4, 112) = .27, p = .90$.

Table 6a
Post-test Comparison of Generic Skills

Multivariate Test of Covariance						
Effect	Wilk's Lambda Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.736	7.956	5	111	.000	.264
School	.889	2.786	5	111	.021	.111
Social Skills Pre-test	.733	8.100	5	111	.000	.267
Decision Making Pre-test	.895	2.605	5	111	.029	.105
Goal Setting Pre-test	.671	10.896	5	111	.000	.329
Assertiveness Pre-test	.623	13.413	5	111	.000	.377
Assistance Skills Pre-test	.834	4.433	5	111	.001	.166
Gender	.857	3.703	5	111	.004	.143
Condition	.915	2.073	5	111	.074	.085
SES	.980	.450	5	111	.813	.020
Gender*Condition	.929	1.699	5	111	.141	.071
Gender*SES	.968	.727	5	111	.605	.032
Condition*SES	.980	.446	5	111	.816	.020
Gender*Condition*SES	.958	.980	5	111	.434	.042

* $p < .05$

Note. Bartlett's Test of Sphericity is statistically significant ($p < .001$). Levene's Test of the Equality of Variances is statistically significant for social skills ($p = .01$).

Covariate pre-test scores for the affective skills domain were statistically significant as expected; for example, perceived harm/risk of substance use, $F(4, 112) = 3.93$, $p = .01$, partial eta squared = .12, refusal skills, $F(4, 112) = 3.31$, $p = .01$, partial eta squared = .11, disapproval of substance use, $F(4, 112) = 4.93$, $p < .01$, partial eta squared = .15, and beliefs in peer norms, $F(4, 112) = 4.63$, $p < .01$, partial eta squared = .14. Thus, affective skills pre-test scores were related to post-test scores. The school covariate was not statistically significant, $F(4, 112) = .31$, $p = .87$, indicating that schools did not differ on affective skills at post-test when controlling for pre-test scores (see Table 6b).

Table 6b
Post-test Comparison of Affective Skills

Multivariate Test of Covariance						
Effect	Wilk's Lambda Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.816	6.311	4	112	.000	.184
School	.989	.309	4	112	.871	.011
Perceived Risk Pre-test	.877	3.933	4	112	.005	.123
Refusal Skills Pre-test	.894	3.314	4	112	.013	.106
Disapproval Pre-test	.850	4.925	4	112	.001	.150
Peer Norms Pre-test	.858	4.631	4	112	.002	.142
Gender	.985	.424	4	112	.791	.015
Condition	.985	.421	4	112	.793	.015
SES	.969	.892	4	112	.471	.031
Gender*Condition	.968	.918	4	112	.456	.032
Gender*SES	.991	.267	4	112	.899	.009
Condition*SES	.989	.307	4	112	.873	.011
Gender*Condition*SES	.977	.658	4	112	.622	.023

* $p < .05$

Note. Bartlett's Test of Sphericity is statistically significant ($p < .001$).

School Bonding

For the school bonding domain, there were no statistically significant main effects or interaction effects for condition, $F(2, 117) = .31, p = .73$, condition by gender, $F(2, 117) = 2.08, p = .13$, condition by SES, $F(2, 117) = .94, p = .39$, or condition by gender by SES, $F(2, 117) = .13, p = .89$. Neither the main effects for gender, $F(2, 117) = .01, p = .99$ and SES, $F(2, 117) = .23, p = .79$, nor the interaction effects for gender by SES, $F(2, 117) = .09, p = .92$, were statistically significant.

As expected, the covariate pre-test scores for attitude toward school, $F(2, 117) = 14.40, p < .001$, partial eta squared = .20, and perceived social support, $F(2, 117) = 9.29, p < .001$, partial eta squared = .14 were statistically significant. Thus, the pre-test scores

were related to the post-test scores. The school covariate was also statistically significant, $F(2, 117) = 4.02, p = .02$, partial eta squared = .06 indicating that this variable was appropriately controlled (see Table 6c).

Table 6c
Post-test Comparison of School Bonding

Multivariate Test of Covariance						
Effect	Pillai's Trace Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.084	5.392	2	117	.006	.084
School	.064	4.016	2	117	.021	.064
School Attitude Pre-test	.198	14.402	2	117	.000	.198
Support Pre-test	.137	9.291	2	117	.000	.137
Gender	.000	.007	2	117	.993	.000
Condition	.005	.311	2	117	.733	.005
SES	.004	.231	2	117	.794	.004
Gender*Condition	.034	2.076	2	117	.130	.034
Gender*SES	.001	.086	2	117	.918	.001
Condition*SES	.016	.938	2	117	.394	.016
Gender*Condition*SES	.002	.130	2	117	.878	.002

* $p < .05$

Note. Box's M is statistically significant ($p = .04$). Pillai's Trace is reported. Bartlett's Test of Sphericity is statistically significant ($p < .001$).

Substance Use

The main effect of condition, $F(4, 113) = .88, p = .48$, and interaction effects of condition by gender, $F(4, 113) = 1.47, p = .22$, condition by SES, $F(4, 113) = .133, p = .26$, and condition by gender by SES, $F(4, 113) = 1.98, p = .10$, were not statistically significant. Main effects for gender, $F(4, 113) = .232, p = .06$, and SES, $F(4, 113) = 1.73, p = .15$, were not statistically significant. The interaction effect for gender by SES, $F(4, 113) = 1.06, p = .38$, was also not statistically significant.

As expected, covariate substance use pre-test scores for alcohol use, $F(4, 113) = 24.28, p < .001$, partial eta squared = .46, cigarette use, $F(4, 113) = 8.36, p < .001$, partial eta squared = .23, marijuana use, $F(4, 113) = 12.31, p < .001$, partial eta squared = .30, and inhalant use, $F(4, 113) = 3.12, p < .05$, partial eta squared = .10, were all statistically significant. Pre-test scores were related to post-test scores in this domain. The school covariate was not statistically significant, $F(4, 113) = 1.33, p = .26$ (see Table 6d). Thus, schools did not differ in substance use at post-test when controlling for pre-test scores.

Table 6d
Post-test Comparison of Substance Use

Effect	Multivariate Tests					
	Pillai's Trace Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.047	1.395	4	113	.240	.047
School	.045	1.333	4	113	.262	.045
Cigarette Use Pre-test	.228	8.359	4	113	.000	.228
Alcohol Use Pre-test	.462	24.284	4	113	.000	.462
Marijuana Use Pre-test	.304	12.314	4	113	.000	.304
Inhalant Use Pre-test	.099	3.117	4	113	.000	.099
Gender	.076	2.318	4	113	.061	.076
Condition	.030	.881	4	113	.478	.030
SES	.058	1.727	4	113	.149	.058
Gender*Condition	.049	1.465	4	113	.217	.049
Gender*SES	.036	1.056	4	113	.382	.036
Condition*SES	.045	1.332	4	113	.263	.045
Gender*Condition*SES	.066	1.981	4	113	.102	.066

$p < .05^*$

Note. Box's M is statistically significant ($p < .001$). Pillai's Trace is reported. Bartlett's Test of Sphericity is statistically significant ($p < .001$). Levene's Test of the Equality of Error Variances is statistically significant for cigarette use ($p < .001$) and marijuana use ($p < .001$).

Behavioral Outcomes

The main effect for condition, $F(4, 116) = .10, p = .98$, was not statistically significant. Interaction effects for condition by gender, $F(4, 116) = .65, p = .63$, condition by SES, $F(4, 116) = .70, p = .59$, and condition by gender by SES, $F(4, 116) = 1.48, p = .21$, were not statistically significant. There were no statistically significant main effects for gender, $F(4, 116) = 1.67, p = .16$, or SES, $F(4, 116) = 2.03, p = .09$. The interaction effect for gender by SES, $F(4, 116) = 1.17, p = .33$, was not statistically significant. School was not statistically significant, $F(4, 116) = .00, p = .18$, partial eta squared = .18, indicating that schools did not differ in behavioral outcomes at post-test when controlling for these scores at pre-test. However, as expected, GPA pre-test scores were statistically significant, $F(4, 116) = 32.19, p < .001$, partial eta squared = .53. Thus, pre-test and post-test GPA scores were related (see Table 6e).

Table 6e
Post-test Comparison of Behavioral Outcomes

Multivariate Tests						
Effect	Pillai's Trace Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.342	9.904	4	116	.000	.255
School	.175	6.130	4	116	.000	.175
GPA Pre-test	.526	32.190	4	116	.000	.526
Gender	.054	1.666	4	116	.163	.054
Condition	.003	.097	4	116	.983	.003
SES	.065	2.032	4	116	.094	.065
Gender*Condition	.022	.654	4	116	.625	.022
Gender*SES	.039	1.165	4	116	.330	.039
Condition*SES	.024	.703	4	116	.592	.024
Gender*Condition*SES	.048	1.478	4	116	.213	.048

$p < .05^*$

Note. Box's M is statistically significant ($p < .001$). Pillai's Trace is reported. Bartlett's Test of Sphericity is statistically significant ($p < .001$). Levene's Test of Equality of Error Variances is statistically significant for tardies ($p = .05$).

Secondary Analyses

An additional 2 (condition) x 2 (gender) x 2 (SES) MANCOVA was conducted to examine the individual effects of gender, SES, and condition, and their possible interactions, on program outcome. Dependent variables in each of the five domains (generic skills, affective skills, school bonding, substance use, and behavioral outcomes) were examined in a single MANCOVA. Bivariate correlations of these domain variables are included in Table 7. For results of this secondary analysis see Table 8.

Table 7
Bivariate Correlations of Pre-test Domain Scores

Domain	Domain				
	Generic Skills	Affective Skills	School Bonding	Substance Use	Behavioral Domain
Generic Skills	-				
Affective Skills	.37*	-			
School Bonding	.48*	.42*	-		
Substance Use	.22*	-.56*	-.20*	-	
Behavioral Domain ^a	-.02	-.29*	-.02	-.27*	-

^aBehavioral Domain at pre-test includes only GPA. Higher scores on GPA indicate lower GPA.

* $p < .05$ (2-tailed)

Table 8
Post-test Comparison of Program Outcome

Multivariate Test of Covariance

Effect	Wilk's Lambda Value	F	Hypothesis df	Error df	Sig.	Partial Eta Squared
Intercept	.762	6.870	5	110	.000	.238
School	.951	1.136	5	110	.346	.049
Generic Skills Pre-test	.667	10.995	5	110	.000	.333
Affective Skills Pre-test	.827	4.587	5	110	.001	.173
School Bonding Pre-test	.833	4.395	5	110	.001	.167
Substance Use Pre-test	.887	2.798	5	110	.020	.113
GPA Pre-test	.816	4.946	5	110	.000	.184
Gender	.956	1.022	5	110	.408	.044
Condition	.989	.244	5	110	.942	.011
SES	.978	.502	5	110	.774	.022
Gender*Condition	.948	1.199	5	110	.315	.052
Gender*SES	.993	.151	5	110	.979	.007
Condition*SES	.955	1.025	5	110	.407	.045
Gender*Condition*SES	.961	.885	5	110	.494	.039

* $p < .05$

Note. Bartlett's Test of Sphericity is statistically significant ($p < .001$).

CHAPTER IV

Discussion

Limitations

There were several limitations in the current study that should be mentioned. First, the survey instrument did not have good reliability, which was a major limitation. Given the poor reliability of the survey instrument, the actual power in the study was weaker than was estimated. In addition, the validity of the survey instrument was unknown. Face validity was provided for some subscales, but alone is not an adequate representation of validity. In addition, response biases can result on self-report instruments. Even though participants were aware that the survey information was confidential, it is possible that they wanted to represent themselves more favorably to the researchers. Given these issues with the reliability and validity of the instrument, the ability to identify program effects was compromised.

The loss of participants due to incomplete data and attrition are limitations that could negatively affect the internal and/or external validity of the results. Attrition in the current study resulted from students discontinuing from the program before it was completed and being absent during data collection. Strict procedures were utilized to eliminate participants from data analyses using listwise deletion, which further increased the loss of participants. The individuals evaluated in the study may have differed from those who dropped out or from those that did not have complete data. Higher attrition

tends to occur among substance users (Botvin, Baker, Filazzola, & Botvin, 1990). Thus, it is possible that those who dropped out of the program would have benefitted more than did the actual program participants.

The research design had limitations. The randomization procedures used were not completely random. The first individual in each pair was randomly assigned, but individuals were paired based on alphabetical order of the students' surnames. This had the effect of decreasing the likelihood of two people with the same surname being assigned to the same condition, which may have introduced some degree of bias. It appears that the only reason for pairing was to ensure equal numbers were assigned to the two conditions, which could be achieved in other ways. In addition, had there been significant results, generalizability would have been compromised by this issue with the random assignment procedure. Another limitation to consider is the fact that the participants were not blind to their assigned conditions. Students in the control group may have felt disappointed that they were not given the opportunity to be part of the intervention program, which afforded more rewards than participating in the minimal-treatment, no-contact control group. While efforts were made to provide participation in an event, and incentives were given during completion of the post-test survey, it is possible that feelings of dissatisfaction biased survey responses. For example, if control group participants over-reported positive symptoms in order to compensate for feeling left out of the intervention, this could have led to smaller differences between conditions.

Suggestions for Future Evaluations

Additional research of the Peer Prevention Project is warranted to address the limitations that were identified and to further explore for possible effects of this program. A measurement tool with good psychometric properties should be utilized in future program evaluations so that effects can be identified if they exist. In addition, it would be beneficial to conduct an attrition analysis to better understand the differences between those who dropped out of the program and those who received it. Data transformations correcting for violations of statistical assumptions could be useful in ensuring the equivalence of conditions on the dependent variables. Further, including a control group who is blind to the purpose of their participation, if possible, may improve program results. Otherwise, it may be helpful to provide more incentives for the control group. For example, researchers could provide control group participants with the option of delayed program participation. Incentives could also be provided to parents to promote their consent. It might be useful to hold a meeting with parents of eligible students to describe the nature of the program and the potential benefits of participating. Previous program participants and their parents could come to express their positive experiences with new parents to improve their willingness to consent to their child's participation. In addition, the ethnicity variable could not be evaluated because there were not enough individuals in each cell. Future evaluators may wish to examine ethnicity as an independent variable as the effectiveness of the program could vary as a function of ethnicity of the program participants.

Program fidelity should be further examined. Strict adherence to curricular guidelines and timelines are difficult to obtain in a school setting, where schedules and

circumstances are often unpredictable, and school procedures may supersede the prevention program. However, departures in implementation can undermine the ability to determine program effects. Even though it was not investigated, there were known problems with program implementation in the current study (K. Butterfield, personal communication, July, 15, 2008). First, the students referred to as “seeds”, who were intentionally placed into the intervention groups, did not all participate in the program. Therefore, not all groups had equal numbers of these students with good leadership skills, which may have been an important element in social influence and the development of peer leadership. Next, there were reported differences across schools in implementing certain program components. Three out of the four schools participated in the second parent-child event. In addition, while all schools participated in the retreats, one school did so much later than the others. Although a minimum of three out of the five curriculum-based outreaches were suggested, only three schools conducted outreaches. The fourth school did not conduct any outreaches. In the three schools that did complete them, all of these schools conducted the three recommended outreaches and also conducted a fourth outreach. Two of the schools conducted the same fourth outreach, but the other school conducted a different fourth outreach. Overall, eliminating the fourth school from the analysis, which did not fully implement the program by conducting program outreach, might reveal significant program effects.

The content and delivery of this program should be further evaluated. Cujpers (2002) found that the addition of life skills training to a social influence program may be effective depending on which skills are included. For example, commitment to not use substances, intentions not to use, and increasing parent-child communication have shown

greater effects than refusal skills, social skills training, self-esteem, and psychological well being (Cujpers, 2002). Thus, the life skills taught in PPP may not have been the most essential to program success.

Although the program emphasized the development of knowledge, affective content, refusal skills, generic skills, and school bonding, a closer examination of how this content was delivered could help to determine how much each aspect was actually focused upon. Certain program components that were supplemental, including addressing peer conflict and problem solving skills, may have been effective if made part of the core curriculum. In addition, refusal skills were addressed through opportunities for interaction with other non-drug using peers; however, it is unclear whether cognitive behavioral skills were addressed. Cognitive behavioral skills were a major focus of Life Skills Training, which is a reputed, effective substance use prevention program (Botvin, Baker, Filazzola, & Botvin, 1990). Although it appears that comprehensive life skills' content elements were included, a closer examination may be warranted. Moreover, the development of leadership skill, which is unique and central to PPP, could be an interesting factor to explore in future program evaluations. Researchers could evaluate whether leadership skill is related to lower rates of substance use and other problem behaviors, and also determine how well the program develops this skill. An analysis of the level of interaction of the program may also help to shed light on the level of active teaching techniques and/or the amount of social interaction of program participants.

Another question to answer is how important the outreach activities are to the program's success. Previous research has suggested greater program effects for peer leaders, which could be related to the number of outreaches conducted. Peer leaders may

reinforce the skill development by conducting program outreach, and have opportunities to develop additional skills through experience that they do not gain during the weekly meetings with adult advisors. For example, during outreaches peer leaders taught refusal skills and decision-making skills to younger students. It could be worthwhile to determine whether program effects result for peer leaders following more outreach opportunities. The current study may inform future evaluations of PPP, which has the potential to successfully prevent substance use and promote positive youth development.

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FOOTNOTES

- ¹ The program's name has been disguised to maintain confidentiality.
- ² The state has been disguised to maintain confidentiality.
- ³ The name of the program developer has been changed to protect confidentiality.
- ⁴ The name of the organization has been changed to protect confidentiality.
- ⁵ Provided archival data lacked any identifying information that could link data back to program participants.
- ⁶ The person's name has been changed to protect confidentiality.
- ⁷ The program component names have been changed to protect confidentiality.
- ⁸ The contents of this citation have been changed to protect confidentiality.

APPENDIX A

Letter Granting Permission for Use of Archival Data⁵

May 27, 2008

To Whom It May Concern:

School Program Initiatives gives Andrea Roof permission to use program evaluation data from one of its prevention programs in support of her dissertation at Rutgers University. Data was collected on eighth-grade student participants from September 4, 2007 until June 30, 2008 and includes:

- Pre- and post-test survey data
- School records data
 - math, language arts and science GPA for first and last quarters
 - number of absences, tardies and suspensions in 2007-08 school year
 - free lunch eligibility

Please let me know if we can be of further assistance.

Best regards,



Karla Butterfield⁶
Program Director
School Program Initiatives