INVEST: WORKING TO IMPROVE OUTCOMES FOR FIRST-TIME SUBSTANCE USE OFFENDERS

EVALUATION FINDINGS, 2004-2005

Austin Independent School District
Department of Program Evaluation

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EXECUTIVE SUMMARY

The INVEST program was implemented in AISD for the first time during the 1999-2000 academic year. Since that time, the program has played a key role in AISD's substance use prevention efforts. When a middle or high school student is removed from the home campus to the Alternative Learning Center (ALC) for a first-time substance use offense, he or she has the option of participating in INVEST. Students who choose to participate may return to their home campuses after attending four INVEST sessions with a parent or other significant adult.

The INVEST sessions are intended to help students and their parents improve communication skills, improve anger management strategies, develop positive conflict resolution methods, develop problem-solving skills, and access support services as needed. The underlying philosophy of the program is that addressing these immediate goals ultimately will help to eliminate short- and long-term substance use, which should in turn help to improve academic performance. In addition, the shortened stay at the ALC for INVEST participants is believed to help prevent erosion of the students' bonds to their home schools and to prevent students from falling behind on course credits earned.

The INVEST curriculum was revised extensively prior to the 2004-2005 academic year. These revisions stimulated an interest in both identifying areas of the program that were in need of improvement and better understanding the program's effectiveness with regard to participant outcomes. A formative evaluation was conducted to understand facilitators' experiences implementing the program during the 2004-2005 academic year, and the results were summarized in a report to the program administrators. In addition to the formative evaluation, secondary data analyses were conducted to examine the effects of INVEST participation on key indicators related to substance use and academic performance, specifically: disciplinary recidivism, school attendance, academic promotion, and academic credits earned.

KEY FINDINGS

Following are the key evaluation findings regarding program fidelity, program implementation, and participant outcomes. The summary of participant outcomes is based on a study that used secondary data sources to compare outcomes for 250 INVEST participants to outcomes for 202 students who chose not to participate in INVEST (non-participants). Both groups of students were referred to the ALC for a first-time substance use offense during the 2004-2005 academic year.

Program Fidelity and Implementation

- Facilitators found the program materials to be useful but indicated that the materials and overall program coordination could be improved by (a) developing a packet of handouts for each session, (b) translating the handouts into Spanish, and (c) establishing a standard for the ratio of participants to facilitators.
- Facilitators identified three INVEST activities, two of which involve physical activity, that were highly effective at engaging the group and generating useful discussion. They identified five other components of the curriculum that could be improved by incorporating strategies designed to engage the group and by improving the instructions.
- Facilitators do not always implement the program according to the curriculum and they may not realize that their changes are compromising the fidelity of the program. Facilitators generally provided high ratings of their own fidelity but provided comments suggesting that they change the order of the activities, make modifications to activities, and substitute alternative activities for those provided in the curriculum. The following recommendations were made to improve fidelity of implementation: (a) require facilitators to attend an annual training, (b) provide more opportunities for facilitators to discuss the curriculum and share their ideas for improvement, and (c) determine where facilitators may and may not have flexibility in implementing the curriculum.

Participant Outcomes

- **INVEST participants were just as likely as non-participants to have a second removal to the ALC.** Eight to nine percent of students committed additional drug and alcohol offenses despite the intensive services provided by INVEST or other ALC programs.
- **INVEST participants showed better attendance in the last six weeks of the school year than non-participants.** The percentage of students who met an attendance criterion that was established for the study was greater for INVEST participants than for non-participants (48.2% versus 25.2%, respectively). Statistical significance remained when independently controlling for gender, offense type (drug or alcohol), and whether the students had met the attendance criterion in the first six weeks of the academic year, but not when simultaneously controlling for these variables. Therefore, the observed difference in the attendance rates between the INVEST and non-participant groups may be due to the combined effects of differences between the groups with regard to gender and attendance history.
- **INVEST participants were more likely than non-participants to be promoted to the next grade level.** Slightly more than 87% of INVEST participants were promoted following the 2004-2005 academic year, compared to almost 74% of non-participants.

This statistical effect remained when simultaneously controlling for gender and drug and alcohol offense history.

- **INVEST participants earned more academic credits than non-participants.** The mean number of credits earned during 2004-2005 was 4.35 credits for INVEST participants in grades 9 through 12 and 2.83 credits for non-participants in grades 9 through 12. This effect was statistically significant even when simultaneously controlling for gender, economic status, offense type (drug or alcohol), and the number of credits attempted.

It is important to interpret the results of the secondary data analyses with caution because families self-selected for participation in INVEST. As a result, the students who participated in INVEST may have had an advantage over the students who did not participate, even in absence of their participation in the program. Nonetheless, the INVEST group showed better outcomes than the non-participant group with regard to attendance, promotion, and academic credits earned, when controlling for some of the important characteristics that differed between INVEST participants and non-participants. The results of the analyses are encouraging and suggest that it is worthwhile to invest resources in enhancing and expanding the program model, using the information provided by the facilitator interviews. Such efforts ultimately may result in a substance use intervention model that effectively addresses the problem within the AISD population and one that may be replicated successfully elsewhere.

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PART I: INTRODUCTION

Adolescent substance use has been associated with health, emotional, behavioral, and academic problems (National Institute on Alcohol Abuse and Alcoholism, July 1997). Although there appears to be a decreasing trend in substance use among Austin Independent School District (AISD) adolescents and those in national samples (McCracken, 2006; Johnston, O'Malley, Bachman, & Schulenberg, 2005), results of the 2005 AISD Student Substance Use Survey (SSUSS) show that one in five AISD high school students had used marijuana in the past thirty days and one in three high school students had used alcohol in the past thirty days (McCracken, 2006). For AISD, the prevalence of self-reported use of both of these substances has been at or above the prevalence reported for Texas over the past 10-year period for 8th, 10th, and 12th grade students. These problems directly impact the District's disciplinary system, which handled 753 drug-related offenses and 100 alcohol-related offenses during the 2004-2005 academic year. Clearly, substance use prevention and intervention remain important priorities for AISD.

The INVEST program has been an essential component of AISD's strategy for preventing substance use since it was implemented in the spring of 2000. The program is based on an adaptation of the previously used SUPER I curriculum, which was implemented in AISD during the 1996-1997 academic year. When a middle or high school student is removed from the home campus to the Alternative Learning Center (ALC) for a first-time substance use offense[1], he or she has the option of participating in INVEST. The primary incentive for participation in INVEST is an abbreviated term of a two-week removal to the ALC, rather than the average removal of six weeks. During the 2004-2005 academic year, 51% of the students who were removed to the Alternative Learning Center (ALC) for a first-time drug or alcohol offense ($N = 630$) chose to participate in the program.

Parental participation is a keystone of the INVEST program. Researchers have identified the family as an important area of influence for students, which may serve either to place students at increased risk for substance use and violence or to buffer them from other risk factors (Substance Abuse and Mental Health Services Administration [SAMHSA], 2002). For example, poor parent-child communication, harsh or erratic discipline practices, and poor parental supervision have been identified as risk factors for delinquent behavior (Loeber, Farrington, & Petechuk, May 2003). Based on guidance provided by the White House Office of National Drug Control Policy (2001), programs that seek to reduce risk factors and enhance

[1] Offenses are considered "first-time" offenses when they occur for the first time in a given academic year. For the purposes of program referral, offenses from previous academic years are disregarded.

protective factors in families should work with families to clarify expectations, to improve communication, and to develop positive models for behavior.

Students who participate in INVEST attend four sessions with a parent or other significant adult. During the sessions participants work to improve communication skills, learn anger management strategies, develop positive conflict resolution methods, develop problem-solving skills, and learn how to access family support services as necessary. The underlying philosophy of the program is that addressing these immediate goals will help to eliminate short- and long-term substance use, which should contribute to improved academic performance. In addition, the shortened stay at the ALC is believed to help prevent erosion of students' bonds to their home schools and to prevent students from falling behind on course credits earned.

The INVEST curriculum was revised extensively prior to the 2004-2005 academic year. These revisions stimulated an interest in both identifying areas of the program that remained in need of improvement, and gaining a better understanding of the program's effectiveness with regard to participant outcomes. A formative evaluation was conducted to understand facilitators' experiences implementing the program during the 2004-2005 academic year, and the results of the evaluation were summarized in a report to the program administrators. Highlights from the formative evaluation are discussed in Part II of this document. In addition to the formative evaluation, secondary data analyses were conducted to examine the effects of participation in INVEST on key indicators related to substance use and academic performance, specifically: disciplinary recidivism, school attendance, academic promotion, and academic credits earned. Descriptions of these analyses and the results are provided in Part III of this report. Together, Parts II and III of this report provide a comprehensive picture of the INVEST program and provide direction for future efforts to improve and expand the program.

PART II: HIGHLIGHTS FROM THE FORMATIVE EVALUATION

A formative evaluation of the INVEST program was conducted to examine facilitators' experiences with the 2004-2005 program, prompted by the revisions to the curriculum that were made prior to the 2004-2005 implementation of the program. To support this effort, a telephone survey was designed to examine the facilitators' fidelity of implementation and to identify areas in need of clarification or revision. Between May 23 and June 8, 2005, 10 of the 15 facilitators included on the 2004-2005 facilitator list participated in telephone interviews. Of the remaining five facilitators, one declined the interview because she had conducted only one session in August 2004, and the remaining four were unavailable.

Four out of the ten survey respondents implemented the program for the first time during the 2004-2005 academic year. Of the remaining six facilitators interviewed, all except one had five or more years of experience with the program.

Although the survey provided some quantitative information regarding facilitators' use of various components of the curriculum, the majority of the information was qualitative. The evaluator transcribed the facilitators' comments during the interviews and then conducted an analysis to identify themes within and across the survey items. Program administrators received a detailed summary of each curriculum component, along with tables of the respondents' comments. Program administrators were expected to utilize this feedback as guidance to make further revisions to the program and curriculum. Therefore, much of the information provided in the formative evaluation document is too detailed for inclusion in this report. Instead, findings regarding program fidelity and key recommendations are briefly summarized in the following sections.

PROGRAM FIDELITY

One of the primary purposes of the facilitator interviews was to examine the fidelity of the implementation of the program. Program fidelity describes "the degree of fit between the developer-defined components of a substance abuse prevention program and its actual implementation." Modifications to the program model may dilute the effects of the program and also may result in unintended consequences (SAMHSA, 2002).

Facilitators' ratings of their fidelity to the curriculum differed from their open-ended responses. Across all but one of the activities[2], an overwhelming majority of the respondents indicated that they "did the activity and followed the curriculum closely." In contrast to their self-ratings, the respondents' open-ended comments described several areas in which they

[2] Only four out of ten respondents indicated that they follow the curriculum closely for the *To Use or Not to Use* activity in Session III. The report to the program administrators recommended revisions to this activity.

modified the curriculum. Although facilitators appear to understand the importance of implementing the program with fidelity, they do not believe that their own changes to the curriculum represent significant modifications. This suggests that it is not sufficient simply to remind facilitators that they must implement the program with fidelity. Instead, specific guidance, training, and, in some cases, revisions to the curriculum may be necessary to improve the fidelity of program implementation.

RECOMMENDATIONS

Seven recommendations were developed by identifying consistent themes across the facilitators' responses. Four of these recommendations focused on improvements to the program materials, program coordination, and specific areas of the curriculum. The remaining three recommendations pertained to improving the fidelity of implementation. Each recommendation is provided below, along with a brief discussion of the findings from the facilitator interviews that led to the recommendation.

1. ***Group Size.*** Several facilitators expressed concern about the size of the INVEST groups, and one facilitator praised the Program Coordinator's efforts to provide backup facilitators to handle large groups. The program administrators should develop a standard for the ratio of participants to facilitators, and should take steps to ensure that the standard is met.
2. ***Program Materials.*** Overall, the facilitators found the INVEST program handouts to be useful, even though they did not always have time to facilitate in-depth discussion of the materials. Instead, their comments regarding the materials focused on improving the organization and distribution of the materials. To address these concerns, program staff should develop a packet of handouts for each session, and ensure that there is an adequate number of packets available at the time of each session.
3. ***Spanish Translation of Handouts.*** One of the facilitators commented that many parents would benefit from a Spanish language version of the handouts.
4. ***Facilitator Training.*** Facilitators who joined the program after the fall training reported that they received only an informal training (i.e., they received guidance from a co-facilitator). To ensure fidelity to the curriculum, all new facilitators should attend a formal training before leading an INVEST session and all existing facilitators should attend a refresher training at least annually.
5. ***Information Exchange.*** The facilitators' comments indicate that some of them informally share information with one another about their experiences implementing the curriculum. However, without a formal structure for stimulating

this exchange, not all of the facilitators participate. The facilitators need a forum to exchange ideas about what works and does not work and to receive guidance that encourages fidelity of implementation. This opportunity should be provided through monthly or bi-monthly meetings, or at the very least, a booster training session prior to the Spring semester.

6. ***Implementation Guidance.*** Facilitators described changes that they made to the curriculum with regard to (a) the order of activities, (b) modifications to the activities, and (c) the substitution of alternative activities for those in the curriculum. The program administrators must determine where facilitators may and may not have flexibility in the implementation of the INVEST curriculum and should provide guidance as appropriate.
7. ***Curriculum Revisions.*** Facilitators identified three INVEST activities, two of which involve physical activity, that they believe were highly effective at engaging the group and generating useful discussion. They identified five other components that could be improved either by incorporating strategies designed to engage the group or by improving the instructions. The program administrators should review and revise the curriculum to strengthen areas of weakness and to provide additional guidance where warranted.

Although the purpose of the facilitator interviews was to identify areas of the program in need of improvement, it is important to note that the facilitators expressed an overall positive attitude toward the program. Most of the respondents indicated that they feel the program is successful in helping to improve parent-child communication. This finding, in conjunction with the results of the analyses discussed in Part III, suggests that it is worthwhile to invest the necessary resources to build on the strengths of the curriculum and to enhance the program model. Such efforts ultimately may result in a model for substance use intervention that is effective with the AISD population and one that may be replicated successfully elsewhere.

PART III: RESULTS OF THE OUTCOMES ANALYSIS

Since the program's inception, both parents and students have reported overwhelmingly that the INVEST program is beneficial, particularly with regard to INVEST's positive impact on family communication (McCracken, 2006). Although the results of the participant surveys have been encouraging, other means of measuring the program's outcomes are essential to determining the program's effectiveness. AISD maintains a districtwide database that includes information about both disciplinary incidents and academic-related indicators. The availability of these data provide a useful option for constructing additional measures of the program's outcomes. Secondary data analyses were used to examine the effects of participation in INVEST on disciplinary recidivism, school attendance, academic promotion, and academic credits earned.

METHODOLOGY

The study sample was identified by selecting students whose first enrollment at the ALC was for a drug or alcohol offense[3], based on an enrollment database maintained by the ALC. A districtwide administrative database was used to determine whether each of these students participated in the INVEST program at the time of their first 2004-2005 enrollment for the drug or alcohol offense. Students who did not choose to participate in INVEST were included in the non-participant comparison group. Attendance data were extracted from the 2004-2005 attendance file that was previously compiled for submission to the Public Education Information Management System (PEIMS); and recidivism, promotion, and academic credit data were extracted from the districtwide administrative database.

Students in the participant group were removed from the analyses if (a) the student participated in Positive Families[4] at any time during the academic year (n = 5), (b) the student did not complete the INVEST program (n = 18), (c) the student completed the INVEST program at any time other than the time of the first enrollment for a drug and alcohol offense (n = 1), or (d) the drug or alcohol offense recorded in the ALC database could not be confirmed by the disciplinary records maintained in the districtwide administrative database (n = 39). The final study sample included 300 INVEST participants and 279 students who did not participate in INVEST (non-participants).

[3] Drug and alcohol offenses include: Influence of alcohol, Influence of drugs (misdemeanor), Possession of alcohol, Possession of drugs (misdemeanor), Sale of alcohol, Sale of drugs (misdemeanor), Tobacco offenses, Use of alcohol, Use of drugs (misdemeanor).

[4] The Positive Families program serves students who are removed to the ALC for physical aggression or persistent misbehavior. The Positive Families program does not include a substance use prevention component, but the curriculum is otherwise very similar to the INVEST curriculum.

Statistical tests were used to examine differences between the INVEST and non-participant groups on both demographic and discipline-related variables and on each of the outcomes of interest (recidivism, attendance, promotion, and academic credits earned). Where percentages are reported, Chi-square tests were used to test for statistically significant differences between groups; where means are reported, independent samples *t*-tests were used to test for statistically significant differences. Linear and logistic regression models were developed to determine whether INVEST participation was a significant predictor of each outcome variable, when controlling for the effect of the other variables that were found to be associated with that outcome. Forward step-wise regression was used, with the F-statistic determining variable inclusion for the linear model and the Wald statistic determining variable inclusion for logistic models. An alpha level of .05 was used for all statistical tests.

POPULATION CHARACTERISTICS

Table 1 displays the demographic and discipline-related characteristics of the INVEST participant and non-participant groups. The groups had similar school-level and age distributions but different gender, ethnicity, and economic status distributions. There were also differences between the groups with regard to the offense type and offense history. Based on these analyses, the following variables were considered as possible confounds when conducting the analyses discussed in the following sections:

1. *Gender* indicates whether the student is male or female.
2. *Economic Status* indicates whether the student was identified as economically disadvantaged at the time of the Fall 2004 PEIMS 110 data submission to the Texas Education Agency.
3. *Offense type* indicates whether the referral to the ALC was for an alcohol or for a drug-related offense.
4. *Offense history* indicates whether the student had a referral to the ALC for a drug or alcohol offense during the 2003-2004 academic year.
5. *First six-weeks attendance* indicates whether or not the student met the attendance criterion during the first six weeks of the school year[5]. This variable was included only in the attendance analysis.
6. *School level* indicates whether the student was a middle or high school student during the 2004-2005 academic year. Note: This is not a confounding variable because the INVEST and Non-INVEST groups had the same distributions of

[5] The criterion for the middle school students in the sample was the mean attendance rate among AISD middle schools for the 2003-2004 academic year (94.7%). The criterion for the high school students in the sample was the mean attendance rate among AISD high schools for the 2003-2004 academic year (89.8%).

middle and high school students. It was included in the outcome analyses to describe the factors associated with each of the outcomes.

Table 1: Demographic and Discipline-Related Characteristics by Program Participation

		INVEST (*N* = 300)	Non-participants (*N* = 279)	*p*-value
Mean Age at Enrollment		15.1 years (*SD* = 1.5)	15.1 years (*SD* = 1.5)	n.s.
School Level	**Middle school students**	25.7%	25.1%	n.s.
	High school students	74.9%	74.3%	
Gender	**Female**	34.3%	24.7%	.012
	Male	65.7%	75.3%	
Ethnicity	**Hispanic**	46.7%	60.6%	< .001
	White, not Hispanic	42.3%	24.0%	
	Black, not Hispanic	10.0%	14.0%	
	Other	1.0%	1.4%	
Economic Status	**Disadvantaged**	39.4%	67.3%	< .001
	Not disadvantaged	60.6%	32.7%	
Offense type	**Alcohol-related**	17.3%	10.4%	.016
	Drug-related	82.7%	89.6%	
Offense history	**2003-2004 drug or alcohol removal**	7.0%	23.3%	< .001

Source: Austin ISD administrative data, as of August 2005, Department of Program Evaluation.
Note. The *p*-values are shown only for differences that are statistically significant (alpha = .05); all non-significant comparisons are identified with "n.s."

RECIDIVISM

Recidivism for this population was defined as any drug or alcohol offense that resulted in a removal from the home campus (including but not limited to a removal to the ALC) after the student's first enrollment at the ALC for a drug or alcohol offense. *Offense type* (drug or alcohol) was the only variable for which there was a statistically significant difference in the percentage of students who were removed for another drug and alcohol offense during the 2004-2005 academic year. Two point five percent of students removed for an alcohol offense had a subsequent removal, compared with 9.2% of students who were removed for a drug offense ($p = .040$). There were no statistically significant differences in recidivism based on *gender, economic status, school level,* or *offense history*. There were also no statistically significant differences in recidivism based on program participation; 7.7% of INVEST participants were removed for a subsequent drug or alcohol offense, compared with 9.0% of non-participants.

ATTENDANCE

The attendance analysis was conducted using the sub-sample of INVEST and non-participants who were released from the ALC prior to the last six-weeks of the 2004-2005 academic year ($n_{INVEST} = 251$, $n_{non\text{-}participant} = 202$). Each student in the sample was classified as to whether the proportion of the days present to the days enrolled met the attendance criterion. The criterion for the middle school students in the sample was the mean of the 2003-2004 AISD middle school attendance rates (94.7%); the criterion for the high school students in the sample was the mean of the 2003-2004 AISD high school attendance rates (89.8%).

There were statistically significant differences in the percentages of students meeting the attendance criterion in the last six-week period of the school year based on *offense type* (drug or alcohol), *gender*, *school level*, and *first six-weeks attendance*. Students removed for an alcohol offense were 1.6 times as likely to meet the criterion as students removed for a drug offense ($p = .001$). Female students were 1.3 times as likely to meet the criterion as male students ($p = .048$). High school students were 1.6 times as likely to meet the criterion as middle school students ($p = .002$)[6]. Finally, students who met the criterion during the first six-week period of the year were 2.0 times as likely to meet the criterion during the last six-week period of the year ($p < .001$) as students who did not meet the criterion during the first six-week period of the year.

As shown in Table 2, INVEST participants were 1.9 times as likely as non-participants ($p < .001$) to meet the attendance criterion during the last six-week period of the year. While this finding suggests that the program may result in improved attendance, it is important to recognize that the differences between the INVEST and non-participant groups discussed in the *Population Characteristics* section may have contributed to the different outcomes for these groups. As discussed previously, there were statistically significant differences between the INVEST and non-participant groups in both their *gender* and *offense type* distributions. In addition to these differences, the groups had differences in attendance during the first six weeks of the 2004-2005 academic year; 55.5% of INVEST participants met the attendance criterion during the first six weeks, compared to 37.8% of non-participants ($p = .001$).

Based on these results, comparisons of the INVEST and non-participant groups were conducted separately for each variable for which there were statistically significant differences in attendance and program participation (*gender*, *offense type*, and *first six-weeks attendance*). As shown in Table 2, the percentage of INVEST participants who met the attendance criterion during the last six-week period was greater than the percentage of non-participants for every

[6] Note: the criterion for middle schools students (94.7%) was more difficult to achieve than the criterion for the high school students (89.8%).

category in the analysis. The differences in the percentages were statistically significant for every category except the alcohol offense type category[7].

Table 2: Percentage of Students Meeting Attendance Criterion by Program Participation for Gender, Offense Type, and Attendance History Groups

		INVEST (n = 251)	Non-participants (n = 202)	p-value
Overall		48.2%	25.2%	<.001
Gender	**Female** (n_{INVEST} = 89, $n_{Non-partiicpant}$ = 52)	51.7%	32.7%	.029
	Male (n_{INVEST} = 162, $n_{Non-partiicpant}$ = 150)	46.3%	22.7%	<.001
Offense type	**Alcohol** (n_{INVEST} = 46, $n_{Non-partiicpant}$ = 19)	60.9%	47.4%	n.s.
	Drugs (n_{INVEST} =205, $n_{Non-partiicpant}$ = 183)	45.4%	23.0%	<.001
1st 6-week attendance	**Criterion Met** (n_{INVEST} = 89, $n_{Non-partiicpant}$ = 103)	58.2%	32.3%	<.001
	Not Met (n_{INVEST} = 158, $n_{Non-partiicpant}$ = 96)	31.5%	17.5%	.024

Source: Austin ISD administrative data, as of August 2005, Department of Program Evaluation.
Note. The p-values are shown only for differences that are statistically significant (alpha = .05); all non-significant comparisons are identified with "n.s."

The results of the Chi-square analysis shown in Table 2 suggest that INVEST participation is related to the attendance criterion when controlling for each confounding variable independently. Logistic regression was used to determine whether the relationship between INVEST participation and the attendance criterion existed when simultaneously controlling for *gender*, *offense type*, and *first six-weeks attendance*. The variables in the final model are shown in Table 3.

Table 3: Logistic Regression Model for Percentage Meeting the Attendance Criterion

	β	SE of β	p-Value	Odds Ratio
Constant	-1.08	.202	< .001	.341
1st 6-weeks attendance	1.22	.25	< .001	3.38
Gender	.55	.26	.037	1.73

Source: Austin ISD administrative data, as of August 2005, Department of Program Evaluation.
Note. Offense type and program participation were not found to be statistically significant predictors of attendance when controlling for first six-weeks attendance and gender.

[7] These results may not have achieved statistical significance due to the small sample size.

First six-weeks attendance was the strongest predictor of whether a student would meet the attendance criterion during the last six-week period of the year. The odds of meeting the criterion in the last six-week period of the year were 3.38 times greater for students who met the attendance criterion during the first six-week period than for students who did not. Gender was also included in the final model; the odds of meeting the attendance criterion during the last six-week period of the year were 1.73 times greater for girls than for boys, even when controlling for *first 6-weeks attendance*. When controlling for both *gender* and *first six-weeks attendance*, INVEST participation and *offense type* were not significant predictors of whether the student met the attendance criterion during the last six-week period of the year. Therefore, the observed difference in the attendance rates between the INVEST and non-participant groups may be due to the combined effect of the differences between the groups with regard to *gender*, *offense type*, and *first 6-week attendance*.

PROMOTION RATES

The promotion analysis was conducted using the sample of 212 INVEST participants and 211 non-participants who were in grades 6 through 11 during the 2004-2005 academic year and for whom 2005-2006 grade level data were available. Each student was classified based on whether the student was promoted to the next grade for the 2005-2006 academic year.

There were statistically significant differences in the percentages of students promoted a grade level from the 2004-2005 academic year to the 2005-2006 academic year, based on *gender*, *offense history*, and *school level*. Female students were 1.1 times as likely as male students to be promoted ($p = .012$). Students without a drug or alcohol offense during 2003-2004 were 1.3 times as likely as students with a drug or alcohol offense to be promoted ($p = .001$). Middle school students were 1.3 times as likely as high school students to be promoted ($p < .001$).

INVEST participants were 1.2 times as likely to be promoted as non-participants ($p = .001$). Although this finding suggests that program participation increases the chances of promotion, once again it is important to note the differences in the INVEST and non-participant groups that were discussed in the *Population Characteristics* section. As discussed previously, there were statistically significant differences in promotion based on *gender* and *offense history*. Therefore, additional analyses were conducted separately for each of these groups. As shown in Table 4, the differences between the promotion rates for the INVEST participants and the non-participants were statistically significant for each of these groups, with a greater percentage of INVEST participants promoted within each group.

Table 4: Promotion Rates by Program Participation for Gender and Offense History Groups

		INVEST (n = 212)	Non-participants (n = 211)	p-value
Overall		87.3%	73.9%	.001
Gender	**Female** (n_{INVEST} = 79, $n_{Non-partiicpant}$ = 52)	94.9%	76.9%	.002
	Male (n_{INVEST} = 133, $n_{Non-partiicpant}$ = 159)	82.7%	73.0%	.047
Offense History (2003-2004)	**None** (n_{INVEST} = 197, $n_{Non-partiicpant}$ = 169)	87.3%	78.1%	.019
	One or more (n_{INVEST} = 15, $n_{Non-partiicpant}$ = 42)	86.7%	57.1%	.040

Source: Austin ISD administrative data, as of August 2005, Department of Program Evaluation.

Logistic Regression was used to determine whether the relationship between INVEST participation and promotion existed when simultaneously controlling for *gender* and *offense history*. INVEST participation was the strongest predictor of whether or not the student was promoted. The odds of being promoted were two times better for INVEST participants than for non-participants even when controlling for *gender* and *offense history*.

Table 5: Logistic Regression Model for Promotion

	β	SE of β	p-Value	Odds Ratio
Constant	1.08	.19	< .001	2.95
INVEST	0.72	.27	.007	2.04
Gender	0.63	.31	.041	1.88
Offense History (2003-2004)	- 0.78	.32	.015	0.46

Source: Austin ISD administrative data, as of August 2005, Department of Program Evaluation.

ACADEMIC CREDIT FOR HIGH SCHOOL STUDENTS

The analysis of academic credit was conducted using the sample of high school students that included 223 INVEST participants and 207 non-participants. The sample was limited to high school students because that is the only group for whom data regarding academic credits were available. The mean number of academic credits earned at the end of the 2004-2005 academic year was used as the outcome of interest. This outcome was selected after verification that the difference in the number of credits attempted between the INVEST and non-participant groups (M_{INVEST} = 6.26, SD = 1.60; $M_{non-participant}$ = 5.98, SD = 1.72) was not statistically significant.

Examination of possible confounds revealed that the mean number of credits earned was significantly different based on *gender*, *economic status*, *offense type*, and *offense history*. The mean number of credits earned was greater for females ($M = 4.49$ credits, $SD = 2.32$) than males ($M = 3.33$, $SD = 2.48$, $p < .001$); the mean was less for student who were identified as economically disadvantaged ($M = 3.06$ credits, $SD = 2.28$) than for those who were not identified as economically disadvantaged ($M = 4.35$ credits, $SD = 2.51$, $p < .001$); the mean was greater for students referred for an alcohol offense ($M = 4.98$, $SD = 2.12$) than for students referred for a drug use offense ($M = 3.39$, $SD = 2.48$, $p < .001$); and the mean was greater for students without a drug or alcohol offense during the previous (2003-2004) academic year ($M = 3.74$, $SD = 2.49$) than for students with a drug or alcohol offense during that year ($M = 3.08$, $SD = 2.45$, $p = .054$).

The group of INVEST participants earned a greater mean number of credits for the 2004-2005 academic year ($M = 4.35$, $SD = 2.47$) than the non-participants ($M = 2.83$ credits, $SD = 2.26$, $p < .001$). However, once again to control for possible confounds, these analyses were conducted separately for each variable for which there was a statistically significant difference between groups with regard to credits earned. Table 6 displays the mean number of academic credits earned for INVEST participants and non-participants by *gender*, *economic status, offense type,* and *offense history*. For each group, the INVEST participants earned a greater number of academic credits than the non-participants earned, and the differences were statistically significant.

Table 6: Mean Number of Academic Credits Earned by Program Participation for Gender, Economic Status, Offense Type, and Offense History Groups

		INVEST ($n = 223$)	Non-Participants ($n = 207$)	*p*-value
Overall		4.35	2.83	<.001
Gender	**Female** ($n_{INVEST} = 64$, $n_{Non-partiicpant} = 43$)	5.06	3.65	.002
	Male ($n_{INVEST} = 153$, $n_{Non-partiicpant} = 144$)	4.05	2.58	<.001
Economic Status	**Disadvantaged** ($n_{INVEST} = 74$, $n_{Non-partiicpant} = 108$)	3.88	2.50	.011
	Not disadvantaged ($n_{INVEST} = 134$, $n_{Non-partiicpant} = 61$)	4.66	3.67	<.001
Offense Type	**Alcohol** ($n_{INVEST} = 45$, $n_{Non-partiicpant} = 19$)	5.54	3.66	.001
	Drugs ($n_{INVEST} = 172$, $n_{Non-partiicpant} = 168$)	4.04	2.73	<.001
Offense History	**None** ($n_{INVEST} = 200$, $n_{Non-partiicpant} = 142$)	4.34	2.91	<.001
	One or more ($n_{INVEST} = 17$, $n_{Non-partiicpant} = 45$)	4.47	2.56	.005

Source: Austin ISD administrative data, as of August 2005, Department of Program Evaluation.

Linear Regression was used to determine whether the relationship between INVEST participation and the number of academic credits earned existed when controlling simultaneously for *gender*, *economic status*, *offense type,* and *offense history*. In addition, the number of credits attempted was included in the model. Although the difference in the mean number of academic credits attempted for the INVEST and non-participant groups was not statistically significant, this variable was included in the model because it is directly related to the number of academic credits earned.

When controlling for the number of academic credits attempted, INVEST participation was the strongest predictor of number of academic credits earned. Based on the model shown in Table 7, an INVEST participant is expected to earn almost one more credit than a non-participant, when controlling for *gender, economic status,* and *offense type* (*offense history* was not a significant predictor of credits earned and therefore was not included in the final model). That is, a student is expected to complete approximately two more semester-long courses if he or she participates in INVEST.

Table 7: Linear Regression Model for Mean Number of Academic Credits Earned

	b Coefficient	β	*p*-Value
Constant	-1.86	--	< .001
Number of Credits Attempted	.833	.543	< .001
INVEST	.899	.180	< .001
Economic Status	-.832	-.167	< .001
Gender	.761	.135	< .001
Offense Type	.898	.130	.001

Source: Austin ISD administrative data, as of August 2005, Department of Program Evaluation.

Note. Offense history was not found to be a statistically significant predictor of the number of credits earned when controlling for the other variables in the model. $R = .685$, $R^2 = .470$, adjusted $R^2 = .463$.

DISCUSSION

The analyses of the INVEST program outcomes provides evidence that the INVEST program may play a role in promoting attendance, supporting progress toward earning academic credits, and preventing retention after a student has been removed to the ALC for a drug or alcohol offense. There is no evidence to suggest that participation in INVEST helps to prevent recidivism to the ALC. This finding is consistent with that of previous analyses of recidivism data for INVEST participants (Christian and McCracken, 2004) which also did not

find a statistically significant difference between the recidivism rates for INVEST participants and non-participants. Together, these findings suggest that 6% to 8% of students commit additional drug and alcohol offenses despite intensive services provided through INVEST or other ALC programs.

The differences in demographic and discipline-related characteristics between the INVEST group and the non-participant group make it important to interpret these results with caution. Families self-selected for participation in INVEST. As a result, the INVEST participants may have had an advantage over the non-participants with regard to attendance and promotion, regardless of program participation. For example, this possible advantage may be due to characteristics of their family relationships.

Nonetheless, the INVEST group showed better outcomes than the non-participant group with regard to promotion and academic credits earned, even when controlling for important characteristics that differed between INVEST participants and non-participants. These results suggest that even though the INVEST participants may enter the program with an advantage in terms of academic indicators, the program may play a role in further enhancing their chances of academic success. For example, the program may foster some of the positive characteristics that are already present in the families who choose to participate. These results are encouraging and suggest that it would be advantageous to work towards recruiting more families of first-time drug and alcohol offenders to participate in the program.

REFERENCES

Johnston, L. D., O'Malley, P. M., Bachman, J. G., & Schulenberg, J. E. (2005). *Monitoring the Future national survey results on drug use, 1975-2004: Volume I, Secondary school students* (NIH Publication No. 05-5727). Bethesda, MD: National Institute on Drug Abuse.

Loeber, R., Farrington, D., & Petechuk, D. (2003, May). Child Delinquency: Early Intervention and Prevention. *Child Delinquency Bulletin Series*. [Bulletin]. Washington, DC: U.S. Department of Justice, Office of Justice Programs, Office of Juvenile Justice and Delinquency Prevention.

McCracken, K. (2006). *Title IV Safe and Drug Free Schools and Communities, 2004-2005: Putting Prevention Programs into the Positive Behavior Support Framework (DPE Publication 04.12).* Austin, TX: Austin Independent School District.

National Institute on Alcohol Abuse and Alcoholism, National Institutes for Health (1997, July). Youth Drinking: Risk Factors and Consequences. *Alcohol Alert 37*. [Bulletin]. Bethesda, MD.

Substance Abuse and Mental Health Services Administration, Center for Substance Abuse Prevention. (2001). *Principles of Substance Abuse Prevention* (DHHS Publication No. (SMA) 01-3507). Rockville, MD.

Substance Abuse and Mental Health Services Administration (SAMHSA), Center for Substance Abuse Prevention. (2002). *The National Cross-Site Evaluation of High-Risk Youth Programs* (DHHS Publication No. (SMA) 00-3375). Rockville, MD.

White House Office of National Drug Control Policy (2001). *Evidence-Based Principles for Substance Abuse Prevention* (NCJ Publication No. 186164). Washington, DC.

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