

# GRADUATION AND ATTENDANCE RATES OF AT-RISK STUDENTS AT TRADITIONAL AND ACADEMIC ALTERNATIVE HIGH SCHOOLS: A TWO-YEAR STATEWIDE STUDY\*

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## Abstract

In this study, the researchers examined the graduation rates and attendance rates over a two-year time period (i.e., 2004–2005 and 2005–2006) for students enrolled in traditional or alternative academic high schools in the State of Texas. Through collection of statewide data using the Texas Education Agency Academic Excellence Indicator System, graduation rates and attendance rates were compared between students enrolled at traditional high schools with at least 70% at-risk students and students enrolled at alternative academic high schools (i.e., a minimum of 70% of at-risk students have to be enrolled). In all four analyses, traditional high schools with at least 70% at-risk students had higher graduation rates and higher attendance rates than did students in the sample of alternative academic high schools. Implications of the findings are discussed.



NOTE: This manuscript has been peer-reviewed, accepted, and endorsed by the National Council of Professors of Educational Administration (NCPEA) as a significant contribution to the scholarship and practice of education administration. In addition to publication in the Connexions Content

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\*Version 1.2: May 6, 2010 6:31 am GMT-5

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Commons, this manuscript is published in the International Journal of Educational Leadership Preparation,<sup>1</sup> Volume 5, Number 2 (April – June 2010). Formatted and edited in Connexions by Theodore Creighton, Virginia Tech and Janet Tareilo, Stephen F. Austin State University.

## 1 Introduction

In 2004, the U.S. Department of Education reported that approximately 10% of the people between the ages of 16 and 24 left school before graduating (National Center for Educational Statistics [NCES], 2005). This statistic indicated that schools were not meeting the needs of over two million adolescents annually (United States Census Bureau, 2005). Furthermore, during the 2003–2004 school year, the total number of dropouts for Grade 9 through Grade 12 in Texas public schools was 15,160 out of a total student population of over 1.2 million high school students, resulting in an annual dropout rate of 1.2% (Texas Education Agency [TEA], 2006a). By grouping all students and grades together, this low annual dropout rate masked the problems experienced by specific student groups or grade levels.

One of the leading educational problems in the United States has been students leaving school short of earning a diploma (Roderick, 1993). The high cost of dropping out of school experienced in the United States leaves fewer students available to train and prepare for advanced jobs. Each year, the United States spends \$9,644 per student as compared with \$22,600 per prison inmate (Alliance for Excellent Education, 2006). Rouse (2005) reported that \$192 billion or 1.6% of the U.S. Gross Domestic Product is lost in combined income and tax revenue with each cohort of 18-year olds who never complete high school. Adding just one additional year of schooling for those students would recoup nearly half of those losses. Furthermore, in 2001, high school dropouts aged 16–24 paid only \$1,445 in Social Security, state, and federal income taxes, compared with \$2,540 paid by high school graduates and nearly \$5,200 paid by four-year college graduates (Sum, Khatiwada, Palma, & Perron, 2004).

Students who fail to complete high school may ultimately cost society more than just lost earning potential. Students earning high school diplomas were compared with students who dropped out of school; dropouts were more likely to be unemployed, less likely to earn as much as their graduating peers, and more likely to receive public assistance (Egemba & Crawford, 2003; Stringfeld & Land, 2002). If the dropout was female, she was more likely to have children at younger ages and more likely to be a single parent. Additionally, the individual stress and frustration associated with dropping out of school has had societal consequences as dropouts have comprised a disproportionate percentage of the nation's prisons (Egemba & Crawford, 2003).

Some researchers have noted a growing complexity in identifying contributing factors to students becoming at-risk and ultimately dropping out (Barr & Parrett, 1995; Janosz, LeBlanc, Boulerice, & Tremblay, 2000; Kronick & Hargis, 1998; Natriello, Pallas, & McDill, 1986; Wells, Bechard, & Hamby, 1989). Some of the factors most often associated with students who drop out have been the students' (a) ethnicity, (b) parents' education and economic status, (c) limited English proficiency, and (d) lack of regular school attendance (Natriello et al., 1986). Not surprisingly, many students lack motivation and disengage from traditional public high schools because they fail to meet the minimum academic standards (McPartland, Balfanz, Jordan & Legters, 2002). Although numerous students physically drop out of school, another large percentage of students psychologically drop out of the educational system while continuing to attend school (Kaminsky, 1992).

Student disengagement has been described as a cumulative process, often originating in early grades, and precedes the decision to drop out (Entwistle, Alexander, & Olson, 1997; Frase, 1989). Disengaged students have claimed that teachers did not care about them, were not interested in their progress, and were not willing to help them with problems (Catterall, 1998; Fine, 1987; Lee, Ready, & Ross, 1999; MacLeod, 1987). Ultimately, as the disconnection between students and schools increased, so did the likelihood that a student would drop out of school (Entwistle et al., 1997; Wehlage & Rutter, 1986).

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Disengaged students have typically experienced several of the following factors correlated to higher dropout rates: low grades, disciplinary infractions, retention in earlier grades, and high absenteeism (Bryk & Thum, 1989; Roderick, 1993; Rumberger & Larson, 1998; Rumberger & Thomas, 2000). Specifically, researchers have documented absenteeism as the most common indicator of overall student engagement (Rumberger, 1995; Rumberger & Larson, 1998; Wehlage & Rutter, 1986). As such, truancy has been related to academic deficiencies (Dougherty, 1999) and truants were documented to be more likely to be involved in fights, assaults, and thefts in public high schools (Toby, 1999).

Small schools and small classes have been offered as interventions for students who are at-risk of dropping out of school (Finn 1998; Finn & Voelkl, 1993; McNeal, 1997; Nye, Hedges, & Konstantopoulos, 2004) and smaller teacher-to-student ratios were associated with high levels of student engagement (Finn & Achilles, 1999; Natriello et al., 1986). Rumberger and Thomas (2000) reported that the student-to-teacher ratio had a positive and substantial effect on high school dropout rates even after controlling for other factors that could influence dropout rates. Although the traditional high school setting may be appropriate for students with strong academic abilities, students who are unmotivated or have been labeled failures in traditional schools may thrive in smaller, more individualized settings (Hosley, 2003).

As such, alternative schools, defined as those educational activities that fall outside the traditional K–12 school educational system (Aron, 2006), have been proposed as an appropriate intervention for students at-risk of dropping out (Hosley, 2003; Lehr, 2004; Raywid & Oshiyama, 2000). In the 1990s there were over 10,000 alternative schools in the United States (Young, 1990). Even so, a NCES (2005) survey indicated that there were not enough alternative school openings for the number of youth who required them during the 1999–2000 school year. In 54% of school districts with such alternative schools, requests for student placement had exceeded the capacity for services within the last three years. Moreover, in 33% of those districts, no new students were able to enroll in alternative educational options (NCES, 2005). Most districts officials resolved this shortfall by developing waiting lists for their programs. For students who had special needs unfulfilled in the traditional school setting, alternative education could provide viable opportunities (Raywid, 1994).

## 2 Statement of the Problem

When at-risk factors are not mitigated by appropriate intervention strategies or assistance from social services, many students believe that the effort needed for success in school is simply not worth the perceived value of a high school diploma (MacLeod, 1987). However, lack of effort from at-risk students evolves from a myriad of social problems or deficiencies within the students themselves (Goodlad & Keating, 1994), which oftentimes results in educators lowering expectations, making negative assumptions regarding capacity to learn, and offering little encouragement to engage in a rigorous curriculum (Jagers & Carroll, 2002).

Flumerfelt and Follo (2004) reported that at-risk students, who are already inhibited by negative external factors, are particularly susceptible to this lack of effort. Comprehensive high schools may be successful in meeting the needs of high-achieving students, but at-risk students may be better served in an alternative educational setting that can address their particular needs and aspirations. Studies were not located and thus, are needed that compare the indicators of success in these two settings for at-risk students. As such, the purpose of this study was to determine if differences were present between two performance indicators (i.e., graduation rates and attendance rates) of schools serving at-risk students in traditional high school settings compared to schools serving at-risk students in academic alternative high school settings.

## 3 Significance of the Study

In the current school environment of high stakes testing and accountability, community and educational leaders at all levels demand that schools perform at increasingly higher levels (Natriello et al., 1986). As educators strive to push the academic achievement of all students to a higher level, effective strategies for motivating at-risk students have become increasingly more vital to the overall success of schools. By closely examining the impact of school settings, educators may be able to apply the appropriate interventions to improve the academic performance of this often-marginalized group in the school community.

Many researchers (e.g., Goodlad & Keating, 1994; Natriello et al, 1986; Roderick, 1993; Stringfield & Land, 2002) have examined societal and educational factors related to student achievement of students identified as at-risk. However, few empirical studies (e.g., Frase, 1989; Johnston, 2000; NCES, 2005) were located in which the school settings were the focus of analysis. That is, the outcomes of at-risk students served in traditional high schools as compared to the same outcomes of students served in academic alternative school settings have not been empirically examined. Therefore, findings from this study can be used by policy makers and educational leaders as they search for interventions and services that may encourage students to complete high school.

## 4 Research Questions

The researchers investigated the following research questions:

- a. What is the difference between graduation rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2004–2005?;
- b. What is the difference between graduation rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2005–2006?;
- c. What is the difference between the attendance rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2004–2005?; and
- d. What is the difference between the attendance rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2005–2006?

## 5 Method

### 5.1 Participants

In 2005, there were over two million students (45.8%) in the State of Texas who met the definition of at-risk (TEA, 2005). A comprehensive list of all high schools in Texas that matched the criterion of the study was obtained from Texas Education Agency (TEA, 2005) and included traditional high schools with 70% or greater at-risk populations and high schools deemed as academic alternative settings. The criterion of 70% or greater at-risk population for traditional high schools aligns with the academic alternative high schools in Texas, which are required to have an enrollment of at least 70% at-risk students to be designated as an academic alternative campus (TEA, 2007).

Schools meeting the criteria of Alternative Education Campuses (AEC) in Texas in the school years 2004–2005 and 2005–2006 totaled approximately 280 for each of these two years. Schools excluded from this study consisted of charter schools, residential facilities, and discipline alternative schools because they did not meet the criteria of AECs. Traditional high schools meeting the criteria of traditional high schools with large at-risk populations for the school year 2004–2005 and 2005–2006 in the State of Texas totaled approximately 110 for each of these two years.

### 5.2 Instrumentation

Archival information was acquired from schools in the State of Texas that met the pre-described criteria for the school years 2004–2005 and 2005–2006. The TEA reports district and school performance results using the Academic Excellence Indicator System (AEIS). Data were obtained from the AEIS database for the performance indicators of graduation rates and student attendance of schools serving at-risk students in academic alternative settings compared to schools serving at-risk students in traditional high school settings.

### 5.3 Dependent Variables

**Graduation rate.** This indicator, based on the total number of students in the 2001–2002 cohort, shows the percentage of students who received their high school diploma on time or earlier by the end of the 2004–2005 and 2005–2006 academic years (TEA, 2006b).

**Attendance rate.** The attendance rate was based on student attendance for the entire school year. Students were required to be present in school 180 days in each of the 2004–2005 and 2005–2006 academic years. Thus, the attendance rate was calculated by dividing the total number of days the students were present in each academic year by the total number of days the students were present at school (TEA, 2006b).

### 5.4 Independent Variables

**Alternative Education Campus (AEC).** The AECs are instructional settings created to foster a positive learning climate featuring: small class sizes, individualized assignments and self-paced timelines, competency-based rather than competition-driven performance assessments, and informal classroom interactions (Raywid, 1983). These settings offer curriculum and instructional innovations to provide individual students the necessary time and help to be successful. Moreover, these settings provide opportunities for faculty input and continuous backing required to implement ambitious changes (Jordan, McPartland, Legters, & Balfanz, 2000). The AECs in this study did not include schools where students were assigned for disciplinary reasons.

**Traditional high schools.** For purposes of this study, traditional high schools consisted of high schools with Grades 9 through 12 in which a minimum of 70% of the students met the criteria specified by the State of Texas for being at-risk (<http://ritter.tea.state.tx.us/peims/standards/wedspre/index.html?e0919>).

### 5.5 Procedures

All data in this study, based on the accountability data reported by TEA for the 2004–2005 and 2005–2006 school years, were collected from archival information maintained by TEA and were accessed from the TEA website. The performance indicators selected for this study were graduation rates and attendance rates. As stated previously, AEC settings in Texas that were excluded from this study were charter schools, residential placement facilities, and discipline alternative schools because they did not meet the criteria of AECs targeted for this study. Additionally, only data from traditional high schools in which a minimum of 70% of the enrolled students were identified as being at-risk were analyzed. The AEIS database is not always comprehensive and, therefore, some indicators may not be reported for some schools. However, all data that were available from AEIS were utilized for the statistical analysis of the selected schools.

## 6 Results

The *Statistical Package for the Social Sciences-PC version 15.0* (Norusis, 2006) was utilized for the statistical analyses of the four research questions in this study. The independent variable for each of the research questions was the school setting, specifically the traditional high schools with large at-risk populations and the academic alternative high school campuses. The dependent variables were student graduation rates and student attendance rates for the school years 2004–2005 and 2005–2006.

Prior to performing statistical analyses, the standardized skewness and kurtosis coefficients for the four dependent variables were examined. All eight values (i.e., a standardized skewness coefficient for each variable and a standardized kurtosis coefficient as well) indicated departure from normality. For example, the standardized skewness coefficient for the 2004–2005 attendance rate (i.e., the skewness coefficient divided by the standard error of the skewness coefficient) was -8.47 (i.e., -1.60/0.19). This index indicated a large negative skew (Onwuegbuzie & Daniel, 2002). Furthermore, the standardized kurtosis coefficient (i.e., the kurtosis coefficient divided by the standard error of the kurtosis coefficient) was 10.92 (i.e., 4.10/0.38), which indicated a leptokurtic distribution, characterized by a distributional shape that was more peaked than the normal distribution (Onwuegbuzie & Daniel, 2002). Similarly, the attendance rate for both traditional

high schools (standardized skewness = -3.82; standardized kurtosis = 5.70) and academic alternative high schools (standardized skewness = -2.86; standardized kurtosis = 3.64), indicated a serious departure from normality. After the calculation of these measures of normality, the researchers determined that parametric statistical analyses were inappropriate due to these indicators of non-normality. Thus, a nonparametric (i.e., Mann-Whitney's  $U$ )  $t$ -test was calculated to examine each of the four research questions.

The Mann-Whitney test was used to test differences between means for two conditions in which different subjects were used in each condition (Field, 2000). The Mann-Whitney test relies on the ranking of scores from lowest to highest. Therefore, the group with the lowest mean rank is the group with the greatest number of low scores. Also recorded in the data analysis is the  $z$  score, which indicates how far and in what direction each item deviates from its distribution's mean, expressed in units of its distribution's standard deviation.

Because multiple outcome measures were examined in this study, a Bonferroni correction was used so that the total amount of experimentwise error would not be greater than 5%. The Bonferroni correction is a multiple-comparison correction used when several dependent or independent statistical tests are being performed simultaneously. To avoid false positive readings, the alpha value needs to be lowered to account for the number of comparisons being performed (Brown & Russell, 1997). The Bonferroni correction was applied by dividing the alpha level (.05) by the number of the outcome measures (four) as described in the research questions. This calculation produced an adjusted alpha level of .125. Thus, for a result to be viewed as statistically significant in this study, the level of statistical significance present must be below the value of .125.

For the 2004–2005 academic year, the descriptive statistics for each of the variables for the traditional high schools and the academic alternative high schools in this study are listed in Table 1. The two variables in the study were analyzed for each of the two academic years. The average graduation rate for the sample of traditional high schools was 78.4% ( $SD = 7.64$ ), which were greater than the 43.4% obtained for the sample of academic alternative high schools ( $SD = 23.60$ ). The traditional high school attendance rate was 92.0% ( $SD = 2.40$ ), which again was greater than the 85.1% ( $SD = 7.90$ ) reported for the academic alternative high schools.

**Descriptive Statistics for Variables by School Year for Both Settings**

Variables	n	M	SD	Standardized Skewness	Standardized Kurtosis
2004–2005					
Graduation Rate	158	62.41	24.27	-4.29	-1.35
Attendance Rate	165	88.62	6.70	-8.47	10.92
2005–2006					
Graduation Rate	158	59.75	24.57	-3.64	-1.46
Attendance Rate	167	88.25	8.06	-11.47	18.00

**Table 1**

For the 2005–2006 academic year, the descriptive statistics for each of the variables for the traditional high schools and the academic alternative high school settings in this study are listed in Tables 2 and 3. The traditional high school graduation rate was 76.28% ( $SD = 8.84$ ), which was greater than the 40.0% reported for the academic alternative high schools ( $SD = 22.69$ ). Finally, the traditional high school attendance rate was 92.10% ( $SD = 2.40$ ), which again was greater than the 84.19% ( $SD = 9.81$ ) reported for the academic alternative high schools.

### Descriptive Statistics for 2004–2005 Variables by School Settings

Variables	n	M	SD	Standardized Skewness	Standardized Kurtosis
Traditional Schools					
Graduation Rate	86	78.36	7.64	-1.05	2.21
Attendance Rate	85	91.96	2.40	-3.82	5.70
AECs					
Graduation Rate	72	43.37	23.60	1.35	-1.22
Attendance Rate	80	85.08	7.90	-2.86	3.64

**Table 2**

### Descriptive Statistics for 2005–2006 Variables by School Settings

Variables	n	M	SD	Standardized Skewness	Standardized Kurtosis
Traditional Schools					
Graduation Rate	86	76.28	8.84	0.22	0.90
Attendance Rate	86	92.10	2.40	-2.93	2.34
AECs					
Graduation Rate	72	40.01	22.69	1.68	-0.23
Attendance Rate	81	84.19	9.81	-4.86	5.73

**Table 3**

## 6.1 Research Question 1

What is the difference between the graduation rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2004–2005?

A nonparametric (i.e., Mann-Whitney's  $U$ )  $t$ -test was calculated for each of the two academic years, with school setting being the variable under investigation. For the 2004–2005 academic year, a statistically significant difference was present in the graduation rates of students in traditional high schools compared to academic alternative high school settings ( $U = 631.00$ ,  $p = .006$ ). The traditional high schools had a 78.4% graduation rate which was slightly less than twice as great as the 43.4% graduation rate reported for AECs during the academic school year 2004–2005. This finding is confirmed with a  $z$  score of  $-8.61$ , which represents over eight and a half standard deviations below the mean. Cohen's  $d$  was quite large, being a value of 1.99 (Cohen, 1988).

## 6.2 Research Question 2

What is the difference between graduation rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2005–2006?

Again, a Mann-Whitney's  $U$ -test was calculated. For the 2005–2006 academic year, a statistically significant difference was present between the graduation rates of students in traditional high schools and the graduation rates of students enrolled in academic alternative high school settings ( $U = 463.50$ ,  $p = .006$ ). Similar to the data analyzed in the 2004–2005 academic year, the traditional high school setting had higher graduation rates, 78.3%, compared to the graduation rates of students enrolled in academic alternative high

schools, 40.01%, during the academic year 2005–2006. This finding is confirmed with a  $Z$  score of  $-9.19$ , which represents more than nine standard deviations below the mean. Cohen's  $d$  for this finding was again quite large, 2.11 (Cohen, 1988).

### 6.3 Research Question 3

What is the difference between the attendance rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2004–2005?

A nonparametric Mann-Whitney's  $U$ -test was calculated to address this research question. For the 2004–2005 academic year, the finding was  $U = 1304.00$ ,  $p < .006$ , indicating the presence of a statistically significant difference between the attendance rates of traditional high schools (92.96%) and the attendance rates of students enrolled in academic alternative high school settings (<http://ritter.tea.state.tx.us/peims/standards/wedspre/index.html>). This finding is confirmed with a  $z$  score of  $-6.83$ , which represents more than six and a half standard deviations below the mean. For this difference, a Cohen's  $d$  of 1.18 was obtained indicating a very large effect size (Cohen, 1988).

### 6.4 Research Question 4

What is the difference between the attendance rates of traditional high schools with large at-risk populations and academic alternative high schools in the State of Texas for the school year 2005–2006?

For this final analysis, a nonparametric Mann-Whitney's  $U$ -test was calculated and yielded a statistically significant result,  $U = 1437.00$ ,  $p < .006$ . A statistically significant difference was present in the attendance rates of students enrolled in traditional high schools (92.10%) and the attendance rates of students enrolled in academic alternative high school settings (84.19%) in the 2005–2006 school year. This finding is confirmed with a  $z$  score of  $-6.55$ , which represents over six and a half standard deviations below the mean. A very large effect size was again present, with Cohen's  $d$  being 1.11 (Cohen, 1988).

## 7 Discussion

Though the majority of students in the United States are educated in traditional public schools, alternatives to traditional public schooling exist in which substantial numbers of students are served (NCES, 2005). What is not clear is whether at-risk students are more successful in traditional high schools or in academic alternative schools. In this study, researchers sought to examine this issue as it related to graduation rates and attendance rates.

For Research Questions 1 and 2 concerning the graduation rates for the two settings in the 2004–2005 and 2005–2006 academic years, statistically significant differences were yielded in both years with higher graduation rates in the traditional high school settings than academic alternative high school settings. As previously discussed, the traditional high school setting is geared toward a specific outcome—graduation. With no other outcome options, at-risk students strive to achieve the only goal available. Although these findings would seem to indicate that higher standards for at-risk students would result in higher achievement, it is important to recognize that at-risk students in the traditional high school setting may be different than those at-risk students in the academic alternative setting. Although students in both settings are considered at-risk, typically the more critically at-risk population (student exhibiting multiple at-risk factors) are present in the alternative setting. Furthermore, Wells et al. (1989) established that the probability of a student dropping out of school increases as the combination of risk factors becomes more extensive.

For Research Questions 3 and 4 concerning the attendance rates for the two settings in the 2004–2005 and 2005–2006 academic years, statistically significant differences were found in both years with higher attendance rates in the traditional high school settings as compared to academic alternative high school settings. Two explanations are proposed for these findings. First, at-risk students in the traditional high school setting may be positively influenced to come to school by highly motivated peers, establishing a positive connection with the school. However, a homogenous group of students who have not had positive school experiences surrounds the at-risk students in the academic alternative school setting.



Next, as proposed in the explanation for Research Questions 1 and 2, at-risk students in academic alternative schools characteristically exhibit more severe or extensive at-risk factors than at-risk students in the traditional high school setting. According to Reid (2000), truants can usually be identified by their home background because they often come from broken homes, live in families where the adult male is absent, live in very large families in poor conditions, have limited English proficiency, and may belong to families with a history of criminal activity. Perhaps at-risk students in academic alternative school settings experience more of the negative external at-risk factors that impact students' ability to attend school regularly. As such, we believe that research studies are needed in which the characteristics of at-risk students in both school settings be examined. It may be that at-risk students at these two school settings differ in important ways, ways not controlled for in this study.

When considering the final educational outcomes of at-risk students, alternative schools offering alternate pathways to high school completion may be viable options for students who would otherwise disengage and dropout. Although traditional schools continue to focus on preparing the majority of students for the college-bound track, many students who fail to meet the minimum academic standards or simply have other vocational plans may be literally left behind. Ou (2008) indicated that between the options of graduating from high school, earning a GED credential, or dropping out, high school graduation was associated with the highest benefits. However, Ou argued that earning a GED credential should benefit dropouts because it indicates a specific level of educational attainment. As such, future studies are needed to examine other performance indicators of academic alternative schools, such as GED credentialing and post-secondary employment.

The lack of regular school attendance was one of various at-risk factors most often cited (Natriello et al., 1986) as being related to low achievement test scores and dropping out. Furthermore, Toby (1999) suggested that students with poor school attendance often have the desire to drop out. This situation may result in students becoming internal dropouts, which means they stay enrolled in school but make little effort to learn. In both the traditional high school setting and the academic alternative school, educators must develop and implement aggressive interventions that address truancy before students begin the process of disengagement. Flexible schedules, culturally sensitive environments, and good curriculum have been recommended as strategies to improve engagement (Giroux, 1994; Hixson & Tinzmann, 1990). Implementing these strategies for at-risk students in both settings could lead to higher graduation and attendance rates for both populations.

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<sup>6</sup><http://www.tea.state.tx.us/perfreport/aeis/about.aeis.html>

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