AUSTIN INDEPENDENT SCHOOL DISTRICT
Department of Program Evaluation

NINTH GRADE PREDICTORS OF DROPOUT RISK RESEARCH BRIEF

August, 2010

INTRODUCTION

The purpose of this brief was to determine which 9th-grade student characteristics could be used in an early warning system to inform principals, teachers, and other administrators about students who are most at risk of dropping out.

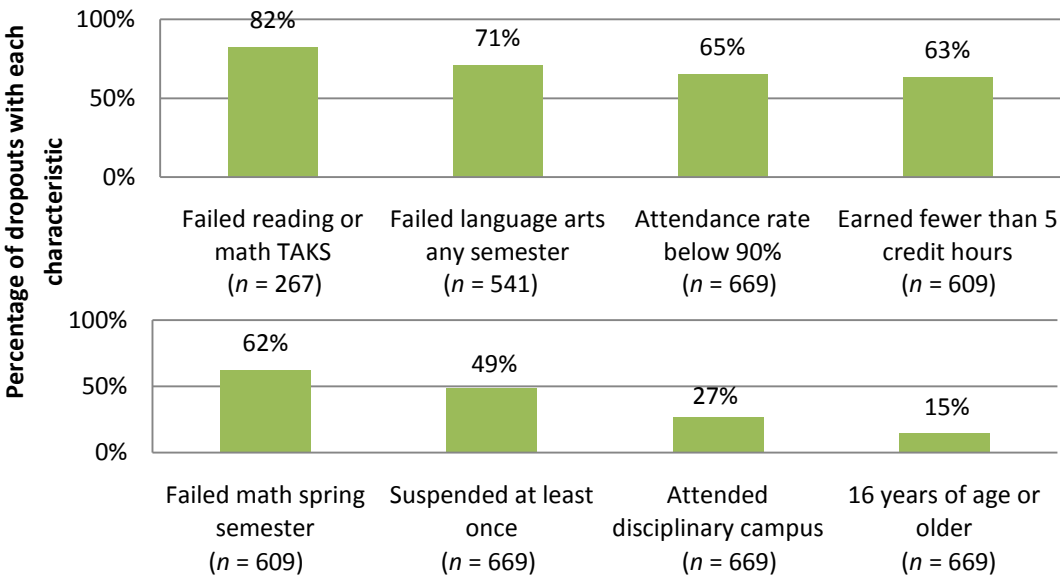
Department of Program Evaluation (DPE) staff examined predictors of dropout risk among first-time 9th-grade students from the 2005–2006 school year (i.e., students who would have been members of the graduating class of 2009 if they proceeded through high school at the recommended pace). Separate analyses were conducted to estimate the overall risk of dropping out and the risk of dropping out in early high school (i.e., during the 2005–2006 school year).

9TH-GRADE PREDICTORS OF OVERALL RISK OF DROPPING OUT

As shown in Figure 1, the 9th-grade characteristics that best predicted overall student dropout risk after controlling for the presence of other risk factors were (a) failing the reading and/or mathematics (math) Texas Assessment of Knowledge and Skills (TAKS) tests; (b) failing an English course in either the first or second semester; (c) having an attendance rate of less than 90%; (d) earning fewer than 5 credit hours; (e) failing a math course in the second semester; (f) having 1 or more suspensions, (g) attending a disciplinary campus; or (h) being 16 years of age or older on September 1, 2005.

Of these, the most powerful predictors of overall dropout risk were failing either reading or math TAKS tests, attendance below 90%, and being 16 years or older at the start of the school year.

Figure 1. Overall Percentage of Dropouts With Each 9th-Grade Characteristic



Quick Facts

- ***The overall risk of dropping out for the Class of 2009 in their 9th-grade year was 10.3%.*** *Among students who were enrolled in AISD during both their 8th- and 9th-grade years, the risk was only* ***8.9%****, while students who were not enrolled in AISD during their 8th-grade year had a* ***15.2%*** *risk of dropping out.*

- ***Students who were 16 years of age or older at the beginning of the school year were 5 times more likely to drop out*** *than were students younger than 16 years old.*

- ***Students who failed both 9th-grade reading and math TAKS tests were 3.1 times more likely to drop out*** *than were students who passed both exams. Students who failed only one TAKS exam (reading or math) were 2.6 more likely to drop out than were students passing both exams.*

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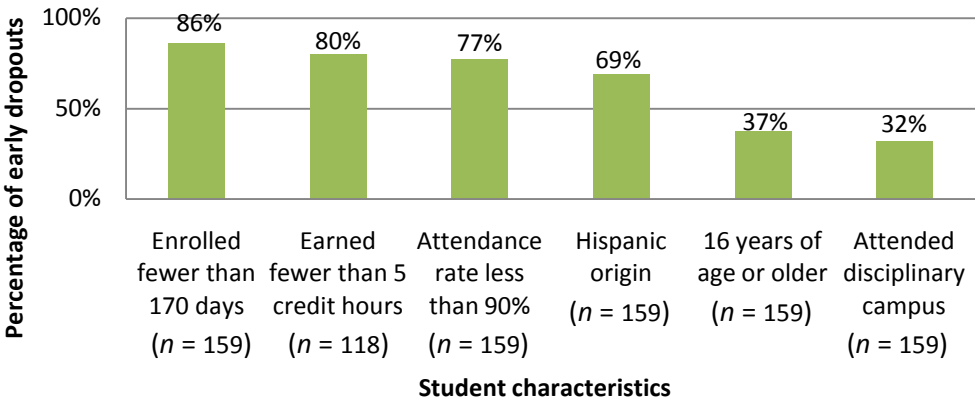
9TH-GRADE PREDICTORS OF RISK OF DROPPING OUT IN EARLY HIGH SCHOOL

The likelihood of dropping out early (i.e., during the 2005–2006 academic year) was significantly higher for students who (a) were enrolled fewer than 170 days; (b) earned fewer than 5 credit hours; (c) had attendance rates below 90%; (d) were of Hispanic origin; (e) were 16 years of age or older on September 1, 2005; or (f) attended a disciplinary campus (Figure 2).

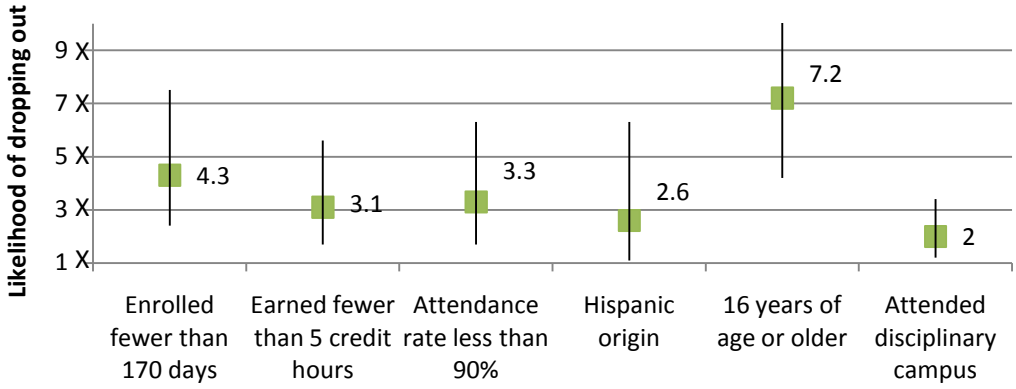
Students who were 16 years of age or older at the beginning of 9th grade were **7.2 times** more likely to drop out of school in 2005–2006 than were students who were younger. Students enrolled fewer than 170 days were **4.3 times** more likely to drop out than were students enrolled 170 days or more (Figure 3).

Figure 2. Percentage of Early Dropouts, According to 9th-Grade Characteristic



Source. AISD student records

Figure 3. Students' Likelihood of Dropping Out in 2005–2006, by 9th-Grade Characteristic



Source. AISD student records

Note. Likelihoods are in comparison with students who are not in the category. Estimates statistically control for each of the other characteristics. The vertical axis shows the number of times more likely a student is to drop out, ranging from 1X (same odds) to 9X (nine times) more likely. The line though each regression estimate indicates the width of the 95% confidence interval.

RECOMMENDED INDICATORS FOR AN EARLY WARNING SYSTEM FOR 9TH GRADE

- 16 years of age or older at the beginning of year
- Poor attendance, especially if less than 90%
- Enrolled fewer than 170 days of the school year (i.e., transfer students)
- Failing either the reading or math TAKS tests. (Note: No TAKS records were found for 402 students who dropped out.)
- Core course failure, especially in English/language arts and math
- Suspension from school or attending a disciplinary campus
- Earning fewer than 5 credits hours

TRANSFER STUDENTS AND THE RISK OF DROPPING OUT

Enrollment	Dropout Rate
Full year (*n* = 4,854)	6.8%
Start late (*n* = 669)	21.8%
Leave early (*n* = 479)	17.5%
Both start late and leave early (*n* = 510)	21.4%

Students who entered late in the school year were 3.8 times more likely to drop out than were students enrolled for the full year.

APPENDIX

Technical Notes

A-1 The 2005–2006 9th-grade cohort comprised students who were not repeating 9th grade from the previous year (i.e., first-time 9th graders who would have been members of the graduating Class of 2009 if they proceeded through high school at the recommended pace). A total of 6,516 students were included in the analyses and were enrolled at AISD at anytime for any length of time during the 2005–2006 academic year.

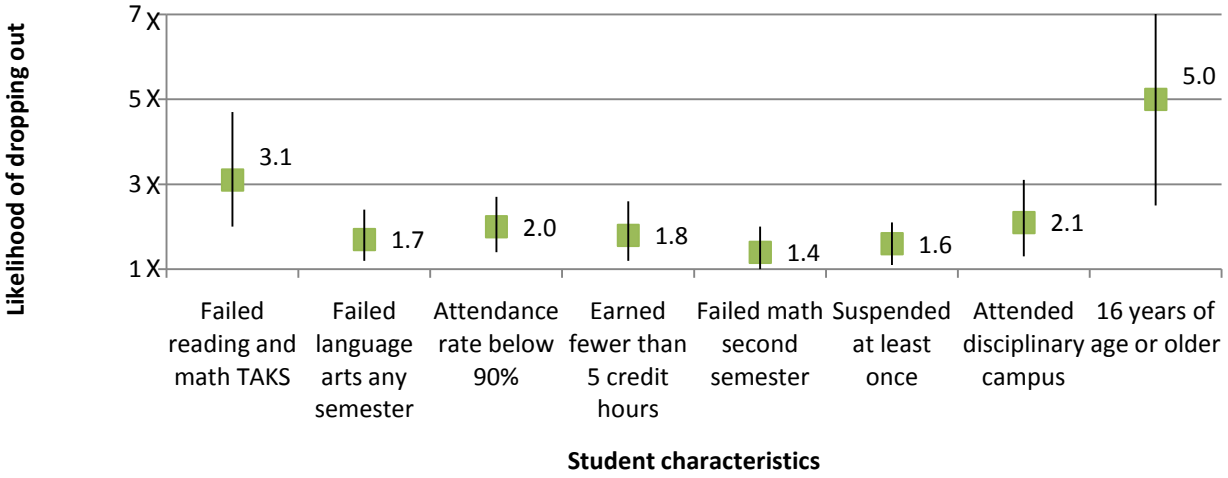
A-2 DPE staff could not confirm whether students who did not attend an AISD school the preceding year (i.e., 2004–2005) were first time 9th-grade students (*n* = 1,441). Nineteen percent of the district's newly incoming students (i.e., students not enrolled in AISD the previous year) were 16 years of age or older on September 1, 2005, compared to less than 1 percent of students enrolled in AISD the previous year. Of the 1,441 newly incoming 9th-grade students in 2005–2006, 39% (n = 560) had attended an AISD school in the past.

A-3 DPE staff used logistic regression analyses to model students' overall likelihood of dropping out anytime between 2005–2006 and 2008–2009 and the likelihood of dropping out early (i.e., 2005–2006 academic year) for various combinations of 9th-grade indicators. The following indicators were used in the analyses:

- 9th-grade demographic characteristics (i.e., gender, ethnicity, economic disadvantage, and more than 16 years of age on September 1, 2005);
- 9th-grade program characteristics (i.e., limited English proficiency and special education);
- 9th-grade student enrollment characteristics (i.e., total days enrolled, annual attendance rate, enrollment type [i.e., enrolled full year, entered late, left early, both entered late and left early], and an indicator if students attended more than one regular [non-disciplinary] campus during the school year [intra-district mobility]);
- 9th-grade disciplinary characteristics (i.e., suspension and disciplinary campus enrollment);
- Met standard on 9th-grade reading and/or mathematics Texas Assessment of Knowledge and Skills (TAKS) tests; and,
- 9th-grade core class performance (i.e., earned fewer than 5 credit hours, failing English/language arts course by semester, failing mathematics course by semester, and failing science course by semester).

A-4 Logistic regression analyses established the strength of each indicator as a good predictor of high school dropout. Logistic regression is used to predict the probability of the occurrence of an event. A logistic model can estimate the significant difference in odds of an event occurring given a specific condition. A predictor in probability modeling is an indicator that influences the likelihood of a particular outcome. Of the indicators examined, only eight significantly influenced the likelihood of a 9th-grade student dropping out at any time between 2005 and 2009. Six indicators were significant in predicting a 9th-grade student dropping out in 2005 – 2006.

Figure A-5. Students' Likelihood of Dropping Out Between 2005–2006 and 2008–2009, by 9th-grade Characteristic



Source. AISD student records

Note. Likelihoods for students in each category were calculated in comparison with likelihoods for students not in the category; estimates statistically controlled for each of the other characteristics. The vertical axis shows the number of times more likely a student was to drop out, ranging from 1x (same odds) to 5x (five times) more likely. The line though each regression estimate indicates the width of the 95% confidence interval.