

The Issue:

What does the research say about the predictive capacity of student success indicators?

Our Response:

Third grade reading proficiency. [Research](#) by the Annie E. Casey Foundation and the Center for Demographic Analysis found that one in six children who are not reading proficiently in 3rd grade fail to graduate from high school on time, which is four times the rate for children with proficient 3rd grade reading skills.ⁱ

[Research](#) from Chapin Hall at the University of Chicago used longitudinal administrative data to examine the relationship between 3rd grade reading level and four educational outcomes: 8th grade reading performance; 9th grade course performance; high school graduation; and college attendance. Among the findings were:

- Students who were above grade level for reading in 3rd grade graduate and enroll in college at higher rates than students who were at or below grade level.
- Third grade reading level is a significant predictor of 8th grade reading level.
- Eighth grade reading achievement and the 9th grade school that a student attends account for many of the differences in performance among the below, at, and above level groups in 9th grade.
- Eighth-grade reading achievement and the 9th grade school a student attends explain differences in graduation and college enrollment rates.ⁱⁱ

Elementary school correlates of success. A [brief](#) from the College and Career Readiness and Success Center at the American Institutes for Research summarizes early childhood through early postsecondary education research that identifies student skills, behaviors, and other characteristics that predict future academic and workplace success. It identifies as elementary school correlates of elementary and middle grades success and secondary readiness: (1) reading by the 3rd grade and (2) less than 10 percent absenteeism in elementary school. Middle grades indicators identified in the brief include:

- Less than 20 percent absenteeism in the middle grades.
- Remaining at the same school through the middle grades.
- Receiving no unsatisfactory behavior grades in 6th grade.
- Passing all ELA and mathematics courses and meeting benchmarks on state exams.
- Passing Algebra I in the 8th grade.
- NAEP mathematics score greater than 292 in 8th grade.
- Meeting the following benchmarks on college preparatory exams: ACT EXPLORE test scores of English 13, mathematics 17, science 20, and reading 15; SAT-9 score greater than 50th percentile.ⁱⁱⁱ

Predictive capacity of on-track indicators. Jennifer Zinth, Director of High School and STEM here at Education Commission of the States, provided the following information on the predictive capacity of on-track indicators for 9th grade and for 6th grade students' subsequent high school outcomes.

Elaine Allensworth and John Easton at the Consortium for Chicago School Research published studies in the mid-2000s that classified 9th graders as on-track if:

- The student had earned the course credits needed to be promoted to 10th grade; and
- The student had no more than one failing semester grade in the core subjects of English, mathematics, science, or social studies.^{iv,v}

Their research (summarized in 2010 National Academy of Sciences [report](#)) found that “ninth graders who were on-track at the end of the freshman year were 3.5 times more likely to graduate than the students who ended their freshman year off-track. Of the on-track students, 82 percent graduated from high school within four years, while only 22 percent of the off-track students graduated on time. After five years, the graduation rate was 85 percent for the on-track students and 28 percent of the off-track students. Subsequent studies found the same patterns among later cohorts of students.”

“Allensworth and Easton found that performance in coursework was more highly associated with graduation than performance on standardized achievement tests. Their findings showed that the on-track indicator was nearly eight times more predictive of graduation than eighth grade achievement test scores. In their sample, 46 percent of the entering freshmen with achievement test scores in the bottom quartile were on-track by the end of the year, and 71 percent of those on-track students with low test scores graduated on time. Furthermore, nearly 25 percent of the entering freshmen with achievement test scores in the top quartile were off-track by the end of the year, and only 38 percent of this group graduated from high school on time. The researchers also examined the relationships between on-time graduation and background factors, including race/ethnicity, gender, economic status, parental education, and achievement in elementary school. They found that although there is a relationship between on-track rates and background characteristics, these factors do not predetermine graduation. The on-track indicator predicted on-time graduation equally well for students regardless of their background characteristics. Furthermore, background factors did not substantially improve the prediction of graduation once students’ ninth grade course performance was considered. While the on-track variable is easy to understand and to calculate, one drawback is that it cannot be calculated until students complete the freshman year.”^{vi}

Robert Balfanz and his colleagues at the [Everyone Graduates Center](#) at the School of Education at John Hopkins University have also done extensive research on on-track indicators.

Education Commission of the States researchers have summarized academic studies on the predictive capacity of these indicators, by these authors and others. Click on the links below to access the summary of findings and policy implications.

- [On-Track Indicator as a Predictor of High School Graduation](#) (this is one of the Allensworth and Easton studies referred to above)
- [What Matters for Staying On-Track and Graduating in Chicago Public High Schools](#) (this is the other Allensworth and Easton study referred to above)
- [The ABCs of Keeping On Track to Graduation: Research Findings from Baltimore](#) – This study explored the relationship between 8th and 9th grade early warning indicators as predictors of graduation outcomes, as well as the relationship between 9th grade indicators and college enrollment outcomes.
- [Building On-Track Indicators for High School Graduation and College Readiness: Evidence from New York City](#) – This study analyzed several on-track indicators that predict the likelihood of graduating with a New York State Regents Diploma; tracked changes in graduation rates and in the rates at which students are on track for graduation at the end of their 9th grade year; and identified student, school, and system-level characteristics associated with students’ readiness for college or work.
- [Theory and Application of Early Warning Systems for High School and Beyond](#) – This study investigated the feasibility of developing an indicator that could simultaneously convey information about both academic

quantity (i.e. the accumulation of credits on a trajectory toward on-time graduation) and the quality of the academic experience (i.e. the ability to say something about how well student performance in core subjects translates to post-high school successes such as probability of college enrollment).

- [Preventing Student Disengagement in Middle Schools](#) – This study examined the correlation between 6th grade indicators and HS graduation.

Eighth grade predictors. As far as the 8th grade predictors, in November 2014, Consortium on Chicago School Research published [Middle Grade Indicators of Readiness in Chicago Public Schools](#), which echoes some of same findings – grades and attendance are great predictors of HS graduation/dropout. Specifically it shows:

- Which of many potential middle grade indicators are most predictive of high school success and college readiness.
- Which students are likely to be successful in high school.
- The degree to which student performance changes in the middle grades.

The Consortium on Chicago School Research has also published reports specific to on-track indicators for [students who are ELLs](#) and [students with disabilities](#). These are part of a larger [portfolio](#) on on-track indicators.

This [Harvard report](#) on middle grades predictive metrics may also be of interest. The report focuses on how predictive analytics can help school systems measure and support high school success, on-time high school graduation and college readiness. ^{vii}

ⁱ Donald J. Hernandez, *Double Jeopardy: How Third Grade Reading Skills and Poverty Influence High School Graduation*, Annie E. Casey Foundation, 2012.

ⁱⁱ Joy Lesnick, Robert M. George, Cheryl Smithgall and Julia Gwynne, *Reading on Grade Level in Third Grade: How Is It Related to High School Performance and College Enrollment?* Chapin Hall at the University of Chicago, 2010.

ⁱⁱⁱ Vanessa Hein, Becky Smerdon and Megan Sambolt, *Predictors of Postsecondary Success*, College & Career Readiness & Success Center at American Institutes for Research, 2013.

^{iv} Elaine Allensworth and John Easton, *On-Track Indicator as a Predictor of High School Graduation*, Consortium on Chicago School Research, University of Chicago, 2005.

^v Elaine Allensworth and John Easton, *What Matters for Staying On-Track and Graduating in Chicago Public High Schools*, Consortium on Chicago School Research, University of Chicago, 2007.

^{vi} Robert M. Hauser and Judith Anderson Koenig, Editors, *High School Dropout, Graduation and Completion Rates: Better Data, Better Measures, Better Decisions*, National Academies Press, 2011.

^{vii} Jason Becker, et al., *Student Success and College Readiness: Translating Predictive Analytics Into Action*, Strategic Data Project, date unknown.