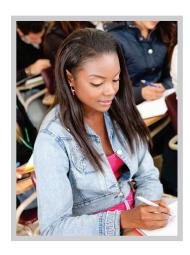# Predictive Indicators for College and Career Readiness

Many educators rely on intuition, instinct, or similar techniques to guide their decision making. Even educators who desire to use data often find themselves guessing about which data is important to help them prepare students for college and careers. Our work at American Institutes for Research (AIR) on predictive indicators provides educators the research to understand which data can be used appropriately to predict student failure and success.

CASE STUDY: A Birth Through 20 Early Warning Indicator System for Massachusetts

The Challenge

In Massachusetts, a partnership between the Department of Elementary and Secondary Education, the Department of Early Education and Care, and the Department of Higher Education wanted to expand on the Early Warning Indicator Index, which identifies ninth-grade students who are off track for graduation based on pre-high school indicators. The state wanted to create a birth through 20 Early Warning Indicator System that shifted focus from dropout prevention to an expanded concept of college and career readiness and was seeking to develop a system that flags students at risk of missing key educational benchmarks. The three state agencies approached AIR to review research, analyze existing student data systems, test and validate early warning indicators, and make recommendations for expanding and enhancing the state data system in the future.

The Response

AIR provided expertise and collaborated with the state agencies to guide the development, validation, and testing of college and career readiness indicators through four phases of work. First, the AIR team conducted a comparative analysis of indicators of college and career readiness research and state and district promising practices for children and students from birth through 20 and compared the analysis to data in the Massachusetts data system. Second, AIR developed and tested a risk model for students in Grades K–12. The final deliverable was a statistical model that provides an annual risk level indicating the predictive probability that each individual student is on track for meeting developmentally appropriate outcomes (e.g., reading by end of third grade; proficiency in mathematics and English language arts by end of sixth grade, passing all ninth-grade courses, graduating from high school) along the educational trajectory. Third, AIR made recommendations to the state agencies regarding elements to include in the state's birth through 20 child/student data system to be able to expand the college and career readiness work in the future. In the fourth phase of AIR's work, the team reviewed the research on indicators of college persistence and degree completion and made recommendations regarding data to include in the state's longitudinal data system.

The Challenge

In spring of 2010, the commissioner of education for the U.S. Virgin Islands Department of Education (VIDE) invited AIR researchers working with the Regional Educational Laboratory Northeast and Islands to an all-day policy conference about dropout prevention. After the event, VIDE requested a summary of research regarding uses of predictive indicators of high school dropouts. AIR was tapped to identify and apply research-based indicators to the unique demographic and socioeconomic context and small sample size of the U.S. Virgin Islands.

The Response

The AIR research team working on behalf of REL-NEI identified a clear set of predictors that could be reliably used to identify students likely to be retained in middle school grades or to drop out of high school. Using indicators supported by the literature, the AIR team confirmed strong predictors of middle school retention and high school graduation:

- Attendance (missing 10 percent or more of instructional time)
- Course performance (failing one or more course—core or any)
- Being overage for grade (being one or more years older than peers)
- Prior grade retention (being retained once or more in earlier grades)

Students who displayed a higher number of risk indicators were increasingly less likely to graduate high school. The indicators accurately identified 71–82 percent of the high school students who failed to graduate on time. The strength and internal consistency of the longitudinal data used for the study and the accuracy of the data maintained by the U.S. Virgin Islands led AIR researchers to conclude that an early warning system to flag potential high school dropouts was feasible and advisable. AIR provided a series of next step recommendations for VIDE to set up an early warning system.

About AIR's College and Career Readiness Work

AIR is a nonprofit organization founded in 1946, currently home to more than 1,600 employees in offices throughout the United States and in 27 countries around the world. AIR has a particular strength in education research and development of practical tools and practices. This expertise includes designing and conducting rigorous and relevant research and evaluations; developing and delivering tools, services, and resources targeted to individual schools, districts, state and federal agencies, and community groups; and analyzing and synthesizing education policy trends and practices.

The college and career readiness group is a dedicated team of individuals with on-the-ground experience and a diverse set of technical and research skills, which include the following:

- Developing data tools that target students for interventions for improved success at the primary, secondary, and postsecondary levels
- Implementing early warning systems for identifying students at risk of dropping out of high school
- Collecting and analyzing data
- Providing detailed policy analysis with a focus on implementation