

Enhancing College and Career Readiness and Success: The Role of Academic Behaviors

One of the biggest challenges in raising student achievement and reducing dropout is early identification of those students who would benefit most from intervention. While assessments of academic achievement provide early indication of risk, academic behaviors are also important for persistence and success (ACT, 2007a, 2008a; Allen, Robbins, & Sawyer, 2010).

This Information Brief describes how careful attention to students' development of strong academic behaviors can enhance student success. Specifically, it examines the:

1. importance of academic behaviors for college and career readiness and success, as shown in ACT research;
2. implications of this research for K-12 educators; and
3. ways that teachers, schools, districts, and states can use this information to enhance students' readiness.

What influences student success in middle school and high school?

Standardized achievement tests help identify students who are academically at risk or off-track for success. Prior academic achievement and cognitive ability surpass all other factors in their influence on student performance and persistence.

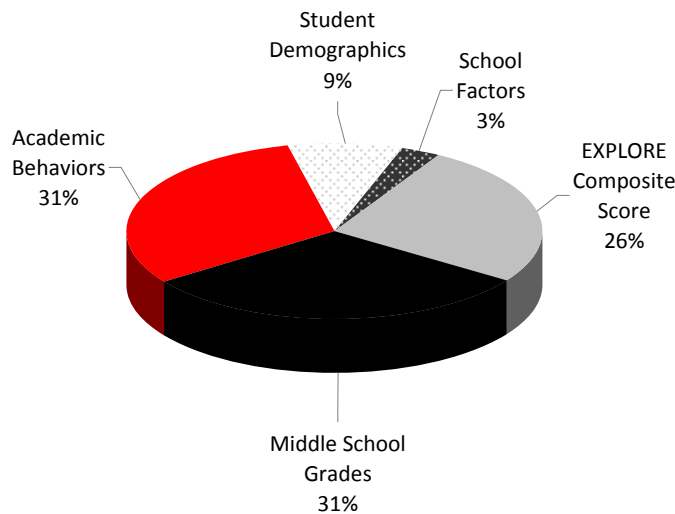
However, other factors influence academic success in school. For example, student motivation—the interest and drive to get schoolwork done—is one of the issues teachers struggle with most. If students are to be successful in meeting a core set of academic standards, they first need to be sufficiently motivated and persistent to do the work. The academic behaviors that are important for student success can be grouped into three broad areas (Robbins et al., 2004):

- **Motivation** includes personal characteristics that help students succeed academically by focusing and maintaining energies on goal-directed activities.
- **Social Engagement** includes interpersonal factors that influence students' successful integration into their environment.
- **Self-Regulation** includes the thinking processes and emotional responses of students that govern how well they monitor, regulate, and control their behavior related to school and learning.

ACT's family of ENGAGE™ assessments provides measures of the academic behaviors that are associated with academic success (ACT, 2008b, 2009, 2010a). The academic behaviors assessed by ENGAGE include all three important areas listed above.

ACT has tested thousands of students using ENGAGE Grades 6-9 and tracked these students' progress as they move through middle school and into high school. Results show that ENGAGE administered during middle school is a valid predictor of high school grades. In addition, even after taking into account previous grades and academic readiness (e.g., EXPLORE® scores), ENGAGE provides additional information that helps more accurately identify students who are at risk of poor grades and academic failure (Casillas et al., 2011). Figure 1 shows that a measure of middle school academic achievement (EXPLORE) and middle school grades in combination are clearly the best predictors of early high school GPA. Academic behaviors are also substantial predictors.

Figure 1. Relative Strength of Predictors of Early High School GPA.



To illustrate what measuring academic behaviors means for individual students, Table 1 highlights the importance of **both** academic readiness **and** academic behaviors for later achievement.

This table shows how student risk (i.e., low scores on academic behavior and academic readiness) can affect student outcomes. For example Student A, who scored low on both ENGAGE's Academic Success Index and EXPLORE, subsequently failed 6 classes and has an extremely low GPA. Student B had the same low EXPLORE score but scored high on the ENGAGE Academic Success Index. Student B did not fail any classes and has a GPA of almost 3.0. In contrast, Student C scored high on EXPLORE. Even so, this student scored low on ENGAGE and ended up with poor academic outcomes (a failed class and a GPA of only 1.56). The student with both a high EXPLORE score and a high ENGAGE score (Student D) had the best academic outcomes with no failed classes and a high GPA.

Table 1. Four Example Students' Academic Behavior and Academic Readiness Scores and Later Academic Outcomes.

		EXPLORE	
		Low (Composite = 9)	High (Composite = 21)
ENGAGE Grades 6-9 Academic Success Index (percentile rank)	Low	Student A Success Index = 3 High school GPA = 0.41 Failed high school classes = 6	Student C Success Index = 5 High school GPA = 1.56 Failed high school classes = 1
	High	Student B Success Index = 95 High school GPA = 2.99 Failed high school classes = 0	Student D Success Index = 99 High school GPA = 4.16 Failed high school classes = 0

What influences success in college and work?

The factors that are important for college and work success go beyond cognitive ability and academic readiness. For example, the low retention and degree attainment rates we observe at U.S. postsecondary institutions affirm the importance of persistence and commitment (Carey, 2004). Likewise, general work attitudes and conduct, such as diligence on the job, persistence to task completion, cooperation, teamwork, and rule compliance, are frequently noted as critical behaviors expected by employers (Casner-Lotto & Barrington, 2006), and important for overall job effectiveness (Hanson & Borman, 2006).

The academic behaviors that are important for success in middle school and high school overlap with those that are important for success in college and in work (ACT, 2007a). Specifically:

- The same behavior areas (i.e., motivation, social engagement, and self-regulation) are important.
- The way these behaviors manifest themselves varies by age. Conduct and homework compliance are important for understanding academic performance and mastery as students transition to high school, whereas motivational factors, such as academic discipline and commitment to college, are important for predicting college success.
- The relative importance of these behaviors changes based on developmental stage and setting. For example, things like orderly conduct and managing feelings are likely to be more important predictors of success in middle school than in the workforce, because there is more variability across students. Behaviors related to social engagement, such as working with others and interpersonal skills, tend to become more important as students move through postsecondary education and into the workforce.

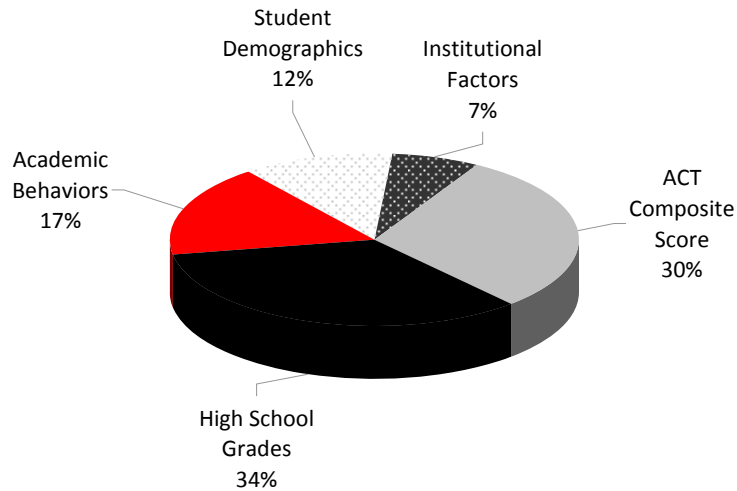
Table 2 provides a few examples of how important academic behaviors from each of the three broad areas develop over time.

Table 2. Examples of Academic Behaviors at Different Developmental Stages.

	Middle School	High School/College	Work
Motivation	Completes homework →	Studies hard →	Works productively
	Organizes desk and school supplies →	Writes down assignments and due dates →	Effectively multi-tasks
Social Engagement	Cooperates with others →	Socializes and engages with peers →	Collaborates with coworkers
	Works well on group projects →	Takes part in school organizations and events →	Is a good corporate citizen
Self-Regulation	Controls temper →	Copes when busy →	Manages stress
	Obeys classroom rules →	Follows academic honor code →	Complies with organizational rules and policies

ACT developed ENGAGE College (formerly known as the Student Readiness Inventory [SRI]) to measure the academic behaviors related to college persistence and success. It is designed to help postsecondary institutions identify and intervene with students who are at risk of poor academic performance or drop out (ACT, 2008b). ACT tested over 14,000 students at 48 postsecondary institutions using ENGAGE College and tracked these students through their college careers. Results show that ENGAGE is a valid predictor of academic performance and persistence. It provides additional information that more accurately identifies students who are at risk of poor grades and drop out, beyond measures of academic achievement alone (Robbins, Allen, Casillas, Peterson, & Le, 2006; Allen, Robbins, Casillas, & Oh, 2008). Figure 3 shows how the psychosocial factors measured by ENGAGE help explain academic performance in college (Robbins et al., 2006). Note that these findings are similar to the findings for middle school.

Figure 3. Relative Strength of Predictors of College GPA.



This line of research underscores the importance of building effective academic behaviors in middle school and high school in order to prepare students for postsecondary education and careers. The same factors that are important for persistence and success in high school continue to be important for success during college and in the workforce.

What do you think of when you think of a person who is successful at work?

Melissa is reliable and efficient with tasks. She is even-tempered and can handle difficult, even stressful situations. She is an important and valued part of the workplace and is focused on the goals of the team. Though these characteristics describe workplace success, they begin to develop at a much younger age.

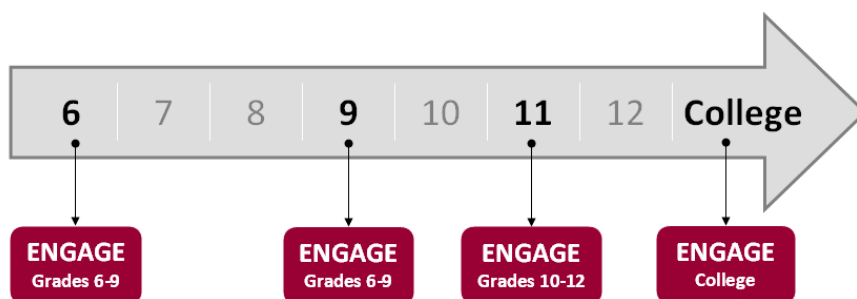
When she was in 6th grade, this successful worker did her homework, even when she didn't like the assignment or would have rather been playing with friends. She learned to be well-behaved and polite, and to follow classroom rules. She was friendly with her classmates and cooperative with teachers and adults.

When she was in high school and college, she learned to study diligently, and became invested in her coursework. She was able to manage her stress, even during finals week, when due dates were numerous and looming. She became involved in her academic community, participating in campus activities and class discussions, and was open to others' ideas. Now, as an adult, she has grown into an ideal worker, productive, composed and successful with colleagues and supervisors.

ACT's academic behavior assessments provide information for all of life's transitions

By providing measures that can be used to assess risk at important points in time in students' academic trajectories, ACT can help educators make better decisions that enhance student success. Figure 4 shows key points in time and the relevant ENGAGE assessments.

Figure 4. Academic Behavior Assessment with ENGAGE at Key Points across Grades 6–16



How can we track student progress?

Academic Readiness

Scores on ACT's academic achievement assessments from the College and Career Readiness System (EXPLORE, PLAN®, and the ACT® test) are reported on the same scale, allowing educators to assess students' progress toward college readiness during middle school and high school in a meaningful way. Planning to take a rigorous core high school curriculum that is aligned with career goals is another important behavior that can be monitored with said assessments. Numerous studies highlight the progression to college success when students take a rigorous core curriculum in high school (cf. ACT, 2006).

Academic Behavior

In order to assess students' progress over time related to academic behavior, ACT has developed a set of scales called ENGAGE Teacher Edition that provides assessments of specific behaviors that are critical to academic success (ACT, 2010b). These scales are designed to assess and monitor students' development in the same academic behavior areas addressed by the student-reported versions of ENGAGE.

The behaviors measured by these scales are tangible, observable, and connected to academic performance and other student success outcomes. By assessing students multiple times per year, educators can track student progress over time. When used in combination with ENGAGE, these scales allow educators to:

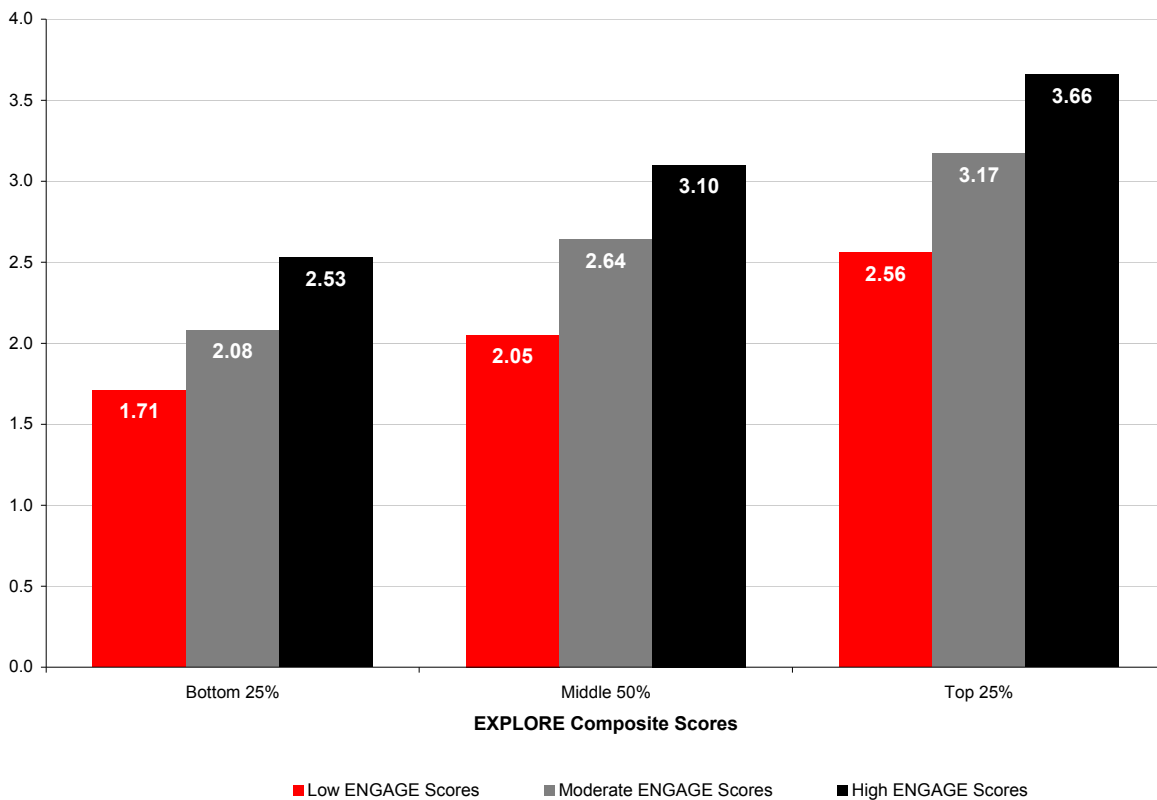
- identify students who are at risk early
- diagnose students' strengths and needs
- identify appropriate curriculum activities and behavioral interventions
- assess the effectiveness of activities and interventions, and
- track students' progress in developing effective academic behaviors

What are the benefits of assessing risk across multiple areas?

It is critical to have multiple assessments of student risk across different areas. Students' academic risk (e.g., achievement test scores like EXPLORE) has only a moderate relationship with their psychosocial risk (as assessed by ENGAGE and ENGAGE Teacher Edition). Each influences student success, and by using these assessments in combination, educators will be better equipped to identify students in need of intervention.

Look at the first three columns in Figure 5 below. The height of these columns shows the 9th-grade GPAs for students who scored in the bottom 25% of EXPLORE scores. The red column shows students with low ENGAGE Grades 6-9 scores and the black column shows students with high ENGAGE scores. Note that even within this low EXPLORE group, students with high ENGAGE scores achieved higher high school GPAs. Now focus only on the black columns. These three black columns show students with high ENGAGE scores—from left to right, you see those with low, moderate, and high EXPLORE scores. Even within this group of students with high ENGAGE scores, those with higher EXPLORE scores achieved substantially higher GPAs (ACT, 2009a). The same pattern is seen within the three red columns and the three gray columns. This graphs shows that both ENGAGE and EXPLORE are important predictors of GPA and that students who have high ENGAGE *and* high EXPLORE scores are the most likely to succeed.

Figure 5. Average 9th-grade GPA by EXPLORE and ENGAGE Grades 6-9 Score Groups.



When educators address both academic readiness and academic behaviors, their students stand a better chance of developing the skills and acquiring the knowledge needed to be college and career ready (Robbins et al., 2009).

Using assessments as part of a risk reduction system

Early assessment of risk factors allows educators to identify and intervene with those students who may need extra support to persist and succeed in school. Students who have high absenteeism rates, have failed one or more core courses, or do not have sufficient credits to be on track for graduation have a significantly higher risk of dropping out before high school graduation. Balfanz and his colleagues (e.g., Balfanz, Herzog, & Mac Iver, 2007) have shown that students who are at risk can be identified as early as the sixth grade. By monitoring these risk indicators, educators are able to intervene with students who are at risk before it is too late.

ACT’s assessments focus directly on the academic behaviors that are related to student success, and these assessments can be used in addition to the factors listed above as part of an early warning system to provide an even more powerful set of tools for assessing student risk, and identifying appropriate interventions and support.

Figure 6 shows how results from ENGAGE and ENGAGE Teacher Edition, along with measures of achievement (e.g., EXPLORE) and other measures (e.g., absenteeism, course failures), can be brought together into a dashboard that provides educators with an at-a-glance overview of each student’s level of risk. By setting criteria for identifying risk on each of the elements of this dashboard, educators can quickly scan through the information and identify those students who are at risk. Figure 6 shows how one student’s scores might look on these indicators. Due to having failed one course and having a low ENGAGE Academic Success Index, this student has been identified as at risk and the flagged cells are highlighted in yellow.

Figure 6. Sample Dashboard of Student Risk Indicators.

Academic Achievement Information			Academic Behavior Information					Risk
EXPLORE Scores (Composite)	Grades	Number of Failed Courses	ENGAGE Academic Success Index	ENGAGE Teacher Edition Scales (8 scores)	Absences	Number of Suspensions	Has been held back?	Number of flags
EXPLORE Composite = 14	GPA = 2.1	1	25	All scores above 4	3	0	No	2

ENGAGE and ENGAGE Teacher Edition also provide more targeted information about the reasons students are at risk, that is, their strengths and needs. By reviewing these scores, educators can better target interventions and provide the particular kinds of support students need most. This allows educators to intervene based on students’ personalities, attitudes, perceptions, and behaviors, and provide interventions designed to increase

positive behaviors and decrease risk. Table 3 illustrates how the three broad academic behavior areas measured by ENGAGE and ENGAGE Teacher Edition can be cross-walked with available interventions to help tailor personalized supports that are more effective for addressing students' needs.

Table 3. Example Crosswalk between Areas of Need and Interventions.

Academic Behavior Area of Need	Examples of Interventions						
	Goal Setting & Time Management	Mentoring	Cross-Age Tutoring	Community Service	Group Work & Communication Skills	Self-Confidence Workshop	How to Follow Rules
Motivation	X	X	X	X			
Social Engagement		X	X	X	X		
Self-Regulation		X				X	X

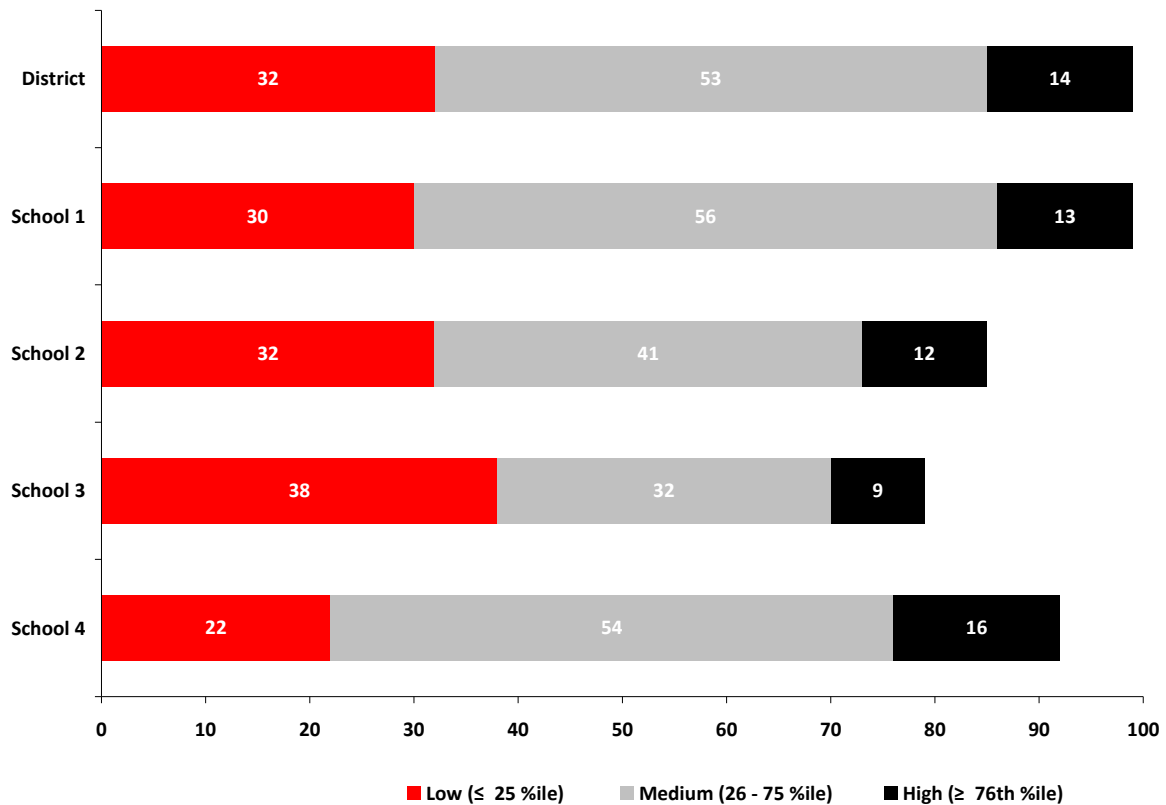
ACT has also built a behavioral skills tool shop for ENGAGE College that provides additional information and activities linked to specific ENGAGE scales. These instructional materials are available to ENGAGE users online and can be accessed through student reports.

Student progress can then be tracked over time using ENGAGE Teacher Edition, helping educators monitor progress and determine next steps. By aggregating the behavioral ratings across students (e.g., across those participating in an intervention or across an entire school) educators can assess the effectiveness of interventions, as well as their own progress in improving students' academic behaviors. Aggregated behavioral ratings can be viewed as a leading indicator of student progress and can be expected to predict future student persistence and academic success.

Monitoring academic behavior readiness at the school, district, and state levels

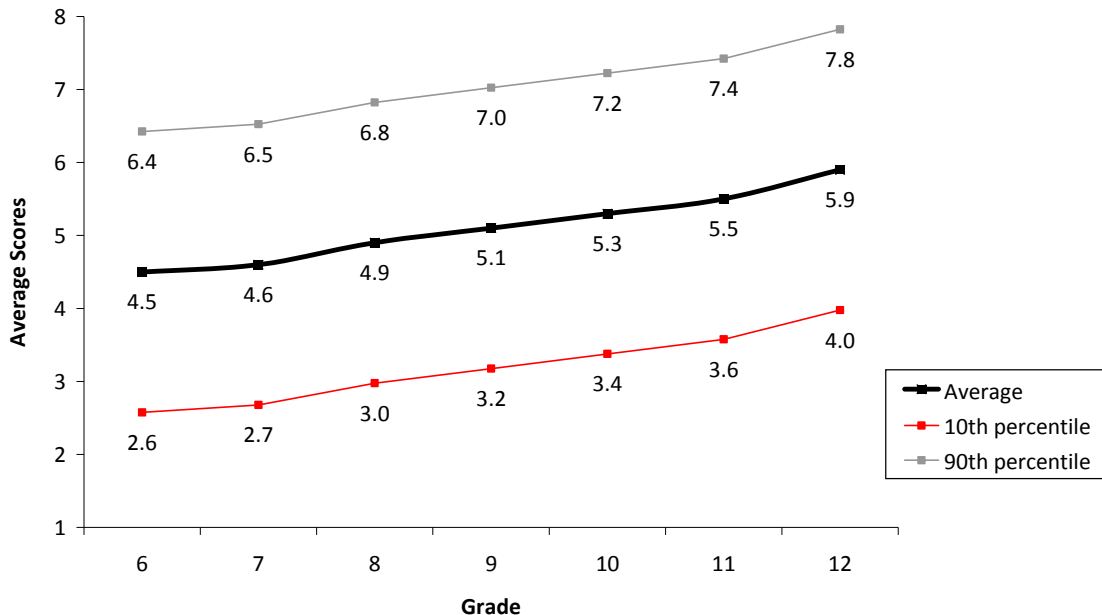
Aggregated measures of academic behavior and of risk (from ENGAGE, ENGAGE Teacher Edition, and other indicators) can provide school-, district-, and state-level summaries that are useful for planning purposes. For example, schoolwide interventions can be tailored to student needs, and resources can be allocated to those groups of students most in need. Figure 7 shows the distribution of ENGAGE Academic Success Index scores for several schools in a district, as well as the district totals. The red sections show the proportions of students scoring at the 25th percentile or below. The black sections show the proportions of students scoring at the 76th percentile or above. Based on Figure 7, School 3 has a somewhat larger percentage of students at risk.

Figure 7. ENGAGE Academic Success Index District-level Aggregate Report.



Aggregate summaries over time allow schools, districts, and states to monitor their progress in supporting and developing their students’ academic behaviors and reducing risk. Longitudinal monitoring of academic behavior measures also can be viewed as providing a leading indicator of success. That is, by improving student academic behavior and reducing risk, educators are providing the foundation for future improvements in academic achievement. Figure 8 provides an example of how aggregate summaries of ENGAGE Teacher Edition scores can be used to track the average academic behavior development and progress for a hypothetical cohort of students starting in 6th grade. For comparison purposes, this figure also includes students being rated at the 10th and 90th percentiles. Clearly, those students whose behavior falls around the 10th percentile would be more likely to be at risk and would require more intensive interventions in order to develop the academic behaviors needed for college and career readiness by 12th grade.

Figure 8. Example of Average ENGAGE Teacher Edition Scores for a Cohort of Students Across Time.



Recommendations

Careful attention to students' development of academic behaviors in middle school and high school can substantially improve their ability to achieve college and career readiness and enhance their success in college and beyond. The following recommendations will help educators provide students with the support they need.

- **Assess student risk across multiple areas, including academic readiness and academic behavior.** ACT research has demonstrated that students' overall risk for failure increases if they are at risk in terms of *either* academic readiness *or* academic behavior. By combining information from both areas, educators will obtain a more accurate assessment of student risk and a more complete profile of students' strengths and needs. In addition, students who do not appear to be at risk based on academic readiness alone may still fail if they have not developed the behavioral skills needed to maintain focus, get along with others, and monitor and manage their behavior. By using a combination of academic readiness and academic behavior information, educators will more accurately identify those students who need additional support early while there is time to intervene.
- **Provide targeted interventions and support based on assessment results.** ACT has also conducted research demonstrating that when students who are at risk are (a) identified on a timely basis, (b) provided interventions designed to address their needs, and (c) make even mild-to-moderate use of the prescribed interventions, they derive significant benefits in terms of increased GPA and persistence rates (Robbins et al., 2009). Educators can avoid "one-size-fits-all" solutions by focusing on those

students who are most at risk and by personalizing interventions based on students' profiles of strengths and needs.

- **Monitor students' academic behaviors using ENGAGE Teacher Edition multiple times each year, as well as other indicators such as absenteeism, missed homework assignments, and disciplinary actions.** Academic failure and dropout do not happen overnight. There are a variety of indicators that can serve as warning signs along the way. ENGAGE Teacher Edition, in combination with other school records (e.g., attendance, disciplinary actions), can serve two important roles. First, it provides the foundation for an effective early warning system to identify students who are at risk. Second, it also allows educators to monitor and document student development and growth.
- **Use aggregated academic behavior assessment results as leading indicators in efforts to monitor progress toward college and career readiness.** ENGAGE Teacher Edition can be viewed as a leading indicator of student success. By regularly reviewing results aggregated at the classroom, school, district, and state levels, educators can identify trends, assess the effectiveness of interventions, monitor progress over time, and document improvements. As a leading indicator, aggregate academic behavior assessment results help educators know that their programs are on the path to success long before improvements in lagging indicators, such as academic readiness or graduation rates, can be documented.

It is critical that students develop effective academic behaviors during middle school and high school. This will help them complete high school academically prepared for college and careers, and it will also provide the psychosocial foundation needed for later success in college, at work, and in their personal lives.

For further information about ENGAGE assessments, go to:

www.act.org/engage/index.html

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