ACT® Engage®

Based on ACT College Readiness Benchmarks, **only one in four US students is academically ready for college** upon high school graduation.

One school district in Kansas focused on the academic behaviors measured by ACT Engage® to help shape students' futures, using assessment data to help students with skill development and college and career planning (see sidebar on page 3 for more details).

Identifying Skills to Succeed in School, at Work, and in the "Real World"

The challenge facing schools today is preparing students for success after high school. Unfortunately, they're fighting an uphill battle:

- Only one in four US students is academically ready for college upon high school graduation (ACT, 2013).

- More than 60% of freshmen who enroll in a four-year degree program will not finish on time. (US Department of Education, 2012).

- The job market is also changing. By 2020, 65% of American jobs will require some level of postsecondary education (Center on Education and the Workforce, 2013).

One proven method in raising student achievement and reducing dropout rates is identifying, at an early stage, students who would benefit most from intervention. While academic achievement assessments provide early indications of dropout risk, academic behaviors are also important for persistence and success (ACT, 2007, 2008a; Allen, Robbins, & Sawyer, 2010).

Paying careful attention to students' development of strong academic behaviors can greatly enhance student success. This white paper examines:

1. the 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

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 greatly influence student performance and persistence.

However, they're not the only factors that influence academic success. Others involve students' academic behaviors, or emotional skills. 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.

Three academic behaviors are important for student success (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 Engage: Assessing Academic Behaviors

ACT Engage assessments, from the creators of the ACT® test, provide measures of the three key behaviors, listed on page 1, that are associated with academic success (ACT, 2008b, 2009, 2010a).

ACT has tested thousands of students using ACT Engage Grades 6–9 assessments and tracked their progress as they moved through middle school and into high school. Results show that using ACT Engage assessments 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., ACT Explore® scores), ACT Engage provides additional information that helps more accurately identify students who are at risk of poor grades and academic failure (Casillas et al., 2011).

> By 2020, **65%** of American jobs will require some level of postsecondary education. (Center on Education and the Workforce, 2013).
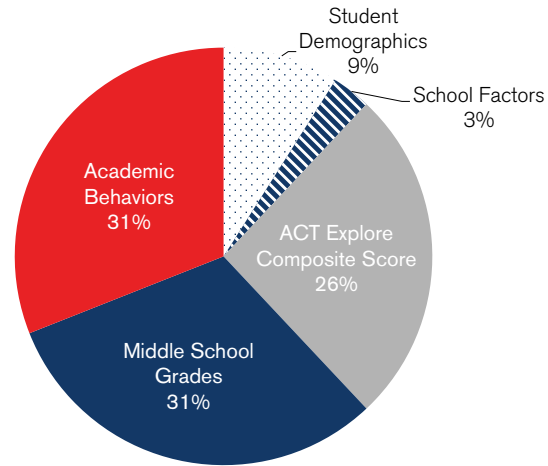
Figure 1 shows that combined measures of middle school academic achievement (ACT Explore) and middle school grades are clearly the best predictors of early high school GPA. Academic behaviors are also substantial predictors.

Figure 2 shows a typical trend of student behavior as it's reflected in the ACT Engage Academic Success Index. The line for ACT Engage users without interventions shows average scores of different samples of students within each grade from 7th through 10th grades. **The typical pattern, as reflected here, is for students' behavior to decrease in 8th and 9th grades, then increase afterward.** This is likely due in part to typical developmental trends among students at that age, as well as their transition to high school.

Figure 1. Relative Strength of Predictors of Early High School GPA
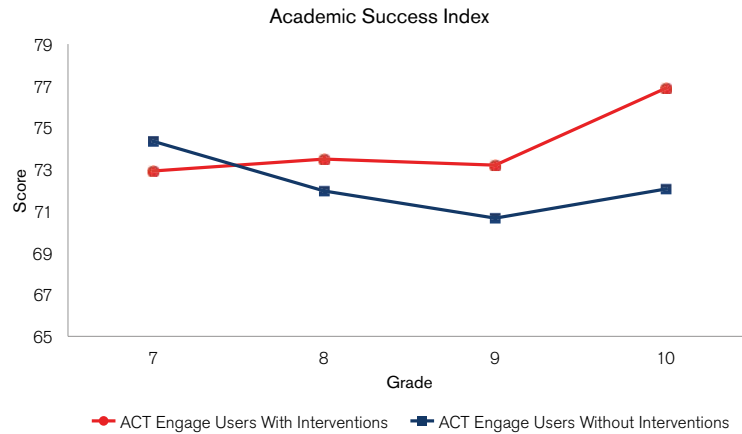
Figure 2. Academic Success Index for Students With and Without Interventions

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

		ACT Explore			
		Low (Composite = 9)		High (Composite = 21)	
ACT 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

The line for ACT Engage users with interventions shows the average Academic Success Index scores by grade of a single sample of students who were followed from 7th through 10th grades and administered

ACT Engage assessments at the end of each school year. These students were given interventions and programming designed to help them improve their academic behaviors. Figure 2 shows that scores stayed

mostly level through 9th grade, instead of decreasing as you would expect and as compared to the users without interventions. **This shows that pairing ACT Engage with interventions helped students maintain their likelihood of academic success, whereas if left alone, their likelihood of academic success is likely to decrease.** In 10th grade, the intervention group's scores improved twice as much as the other students, showing the positive effect that improving students' academic behaviors can have on their likelihood of academic success.

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.

The 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 ACT Engage's Academic Success Index and ACT Explore, subsequently failed six classes and has an extremely low GPA. Student B had the same low ACT Explore score but scored high on the ACT 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 ACT Explore. Even so, this student scored low on ACT Engage and ended up with poor academic outcomes (a failed class and a GPA of only 1.56). The student with both a high ACT Explore score and a high ACT Engage score (Student D) had the best academic outcomes with no failed classes and a high GPA.

What Influences Success in College and Work?

Factors crucial to college and work success go beyond cognitive ability and academic readiness. For example, the low retention and degree attainment rates we observe at US postsecondary institutions affirm the

CASE STUDY: Using Academic Behaviors to Prepare Students for College and Careers

The Challenge

Evaluating students' academic behaviors to prepare them for high school and beyond

The Solution

Using ACT Engage Grades 6–9 as a key component for increasing students' citizenship, college readiness, and career readiness

McPherson Unified School District in Kansas enrolls approximately 2,400 students and is recognized as one of the leading school districts in the state. The district received a waiver to use ACT assessments, including ACT Engage, instead of the Kansas state standards for the purpose of determining adequate yearly progress (AYP) under No Child Left Behind.

McPherson is a strong supporter of the value of academic achievement measures (ACT Explore, ACT Plan®, and the ACT test) but wanted to look at students' academic behaviors as well. According to former superintendent Randy Watson, McPherson strongly believes that "schools should take a broad look at a student through a variety of assessments." ACT Engage allows them to examine another set of factors that can pinpoint which students may be lacking the skills needed to be successful during and after high school.

For the baseline year, McPherson administered ACT Engage to all students in grades 6 through 12. Based on ACT Engage results, McPherson targeted several groups of students for intervention: (a) those who show a low probability of academic success (defined as a high school GPA below 2.0) using the ACT Engage Academic Success Index, (b) those with low scores in key ACT Engage scales, such as Academic Discipline, and/or (c) those who show a pattern of low academic achievement scores *and* low ACT Engage scores.

Through Professional Learning Communities, staff review the results from ACT Engage along with academic achievement measures from ACT Explore, ACT Plan, ACT WorkKeys®, and the ACT test. In addition, teacher advisors are given the results to use in helping students create future plans and developing their skills. ACT Engage results also are shared at parent meetings alongside academic achievement test results. Superintendent Watson indicated that they have had very positive responses from both students and parents: "They like that we are helping them."

The Outcome

When it comes to individual, school, and district-level outcomes, McPherson expects to see outcomes related to their C³ initiative—Citizenship, College, and Career Readiness. The district's goal is to have every student ready in these three areas upon high school graduation. Watson stated, "ACT Engage gives us valuable data on the critical psychosocial variables which can enable students to be successful."

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).

> **60%** of new jobs that emerge in the 21st century will require skills that are possessed by only **20%** of the current workforce. (National Commission on Mathematics and Science Teaching for the 21st Century, 2000).

The academic behaviors important for success in middle school and high school overlap with those that are important for success in college and in work (ACT, 2007). 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 among 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. 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
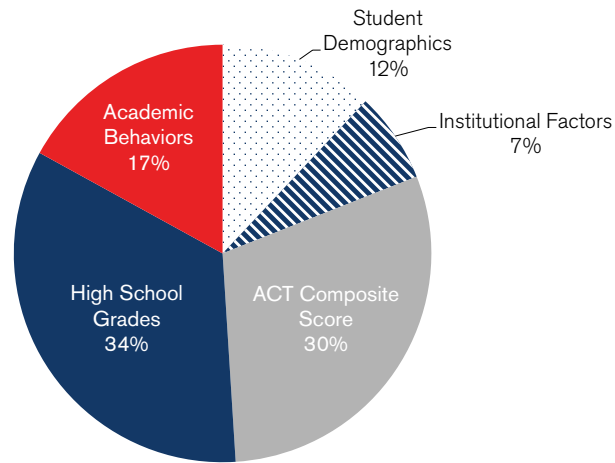
Figure 3. Relative Strength of Predictors of College GPA

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

ACT developed ACT Engage College (formerly known as the Student Readiness Inventory) 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 dropping out (ACT, 2008b). ACT tested more than 14,000 students at 48 postsecondary institutions using ACT Engage College and tracked these students through their college careers. Results show that ACT 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 dropping 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 ACT Engage help explain academic performance in college (Robbins et al., 2006). Note that these findings are similar to the findings for middle school.

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 Makes a Person 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 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
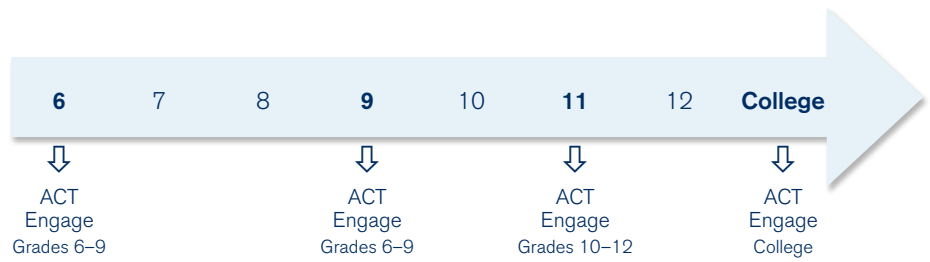

Figure 4. Academic Behavior Assessment with ACT at Key Points Across Grades 6 Through College

that enhance student success. Figure 4 shows key points in time and the relevant ACT Engage assessments.

How Can We Track Student Progress?

Academic Readiness

Scores on academic achievement assessments from the ACT College and Career Readiness System (ACT Explore, ACT 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).

> More than **60%** of freshmen who enroll in a four-year degree program will not finish on time. (US Department of Education, National Center for Education Statistics, Integrated Postsecondary Education Data System (IPEDS), Spring 2012, Graduation Rates component (provisional data)).

Academic Behavior

In order to assess students' progress over time related to academic behavior, ACT has developed a set of scales called ACT 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 ACT 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 ACT Engage, these scales allow educators to:

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

What Are the Benefits of Assessing Risk Across Multiple Areas?

It's critical to have multiple assessments of student risk across different areas. Students' academic risk (e.g., achievement test scores like ACT Explore) has only a moderate relationship with their psychosocial risk (as assessed by ACT Engage and ACT 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. The height of these columns shows the 9th-grade GPAs for students who scored in the bottom 25% of ACT Explore scores. The red column shows students with low ACT Engage Grades 6–9 scores and the blue column shows students with high ACT Engage scores. Note that even within this low ACT Explore group, students with high ACT Engage scores achieved higher high school GPAs.

Now focus only on the blue columns. These three blue columns show students with high ACT Engage scores—from left to right, you see those with low, moderate, and high ACT Explore scores. Even within this group of students with high ACT Engage scores, those with higher ACT Explore scores achieved substantially higher GPAs (ACT, 2009). The same pattern is seen within the three red columns and the three gray columns. This graph shows that both ACT Engage and ACT Explore are important predictors of GPA and that students who have high
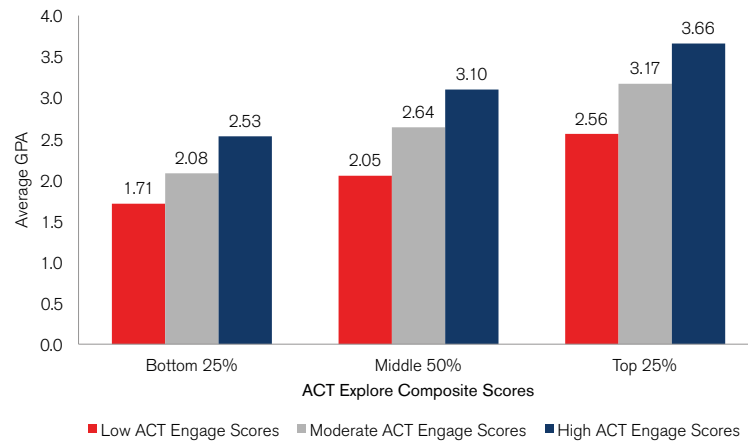

Figure 5. Average 9th-Grade GPA by ACT Explore and ACT Engage Grades 6–9 Score Groups

ACT Engage *and* high ACT Explore scores are the most likely to succeed.

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 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,

McPherson United School District in Kansas has used multiple assessments to gauge both students' academic achievement and their academic behaviors, resulting in a holistic approach to predicting success during and after high school (see page 3).

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 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.

Academic Achievement Information			Academic Behavior Information					Risk
ACT Explore Scores (Composite)	Grades	Number of Failed Courses	ACT Engage Academic Success Index	ACT Engage Teacher Edition Scales (8 Scores)	Absences	Number of Suspensions	Has Been Held Back?	Number of Flags?
ACT Explore Composite = 14	GPA = 2.1	1	25	All Scores Above 4	3	0	No	2

Figure 6. Sample Dashboard of Student Risk Indicators

Table 3. Example Crosswalk Between Areas of Need and Interventions

Academic Behavior Area of Need	Examples of Interventions						
	Goal Setting and Time Management	Mentoring	Cross-Age Tutoring	Community Service	Group Work and 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

Figure 6 shows how results from ACT Engage and ACT Engage Teacher Edition, along with measures of achievement (e.g., ACT 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 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 ACT Engage Academic Success Index, this student has been identified as at risk and the flagged cells are highlighted in yellow.

ACT Engage and ACT 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 ACT Engage and ACT Engage Teacher Edition can be cross-walked with available interventions to help tailor personalized supports that are more effective for addressing students' needs.

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

ACT Engage and ACT Engage Teacher Edition also provide more targeted information about the reasons students are at risk—that is, their strengths and needs.

Student progress can then be tracked over time using ACT 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 ACT Engage, ACT 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 ACT 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 blue 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.

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 ACT 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 are more likely to be at risk and
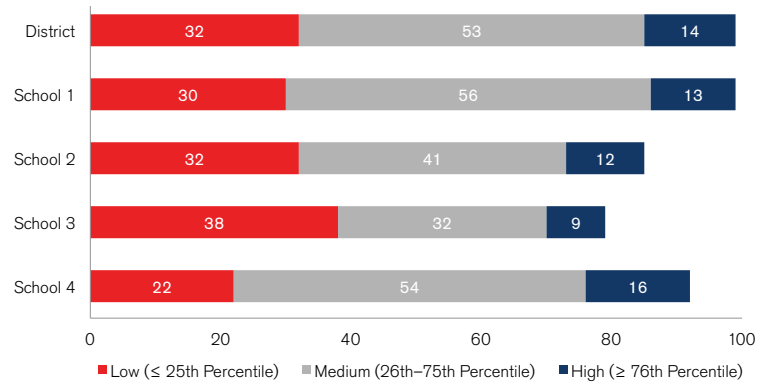

Figure 7. ACT Engage Academic Success Index district-level aggregate report
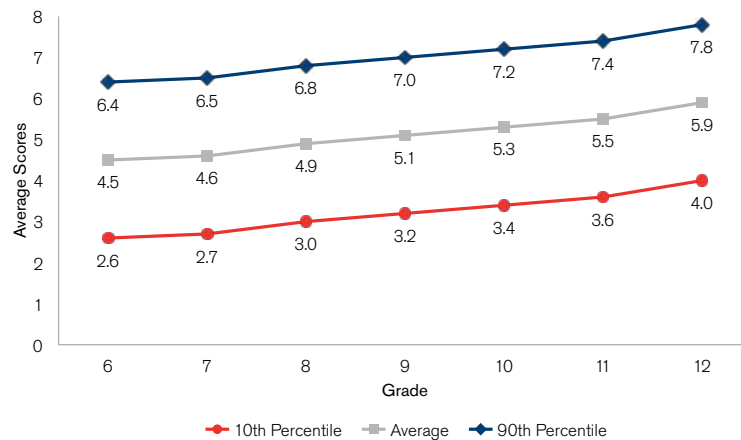

Figure 8. Example of Average ACT Engage Teacher Edition Scores for a Cohort of Students Across Time

would require more intensive interventions to develop the academic behaviors needed for college and career readiness by 12th grade.

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

- **Monitor students' academic behaviors using ACT 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 many indicators that can serve as warning signs along the way. ACT 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 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.** ACT 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's 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 more information about using ACT Engage to help your students, go to
www.act.org/engage

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