Under No Child Left Behind (NCLB), the federal government, states, and districts have used a single indicator to hold schools accountable for student success. Some go as far as to generate district and school report cards predominantly based on standardized test scores and shutting down those schools that fail to make satisfactory grades. NCLB accountability, however, has not yielded improvements in the number of students succeeding, if success is measured by the number of students graduating from college within six years. Data reveal only a 2.0 percentage point increase from 2002 to 2006 in the total number of full-time students who began seeking a bachelor’s degree at a four-year institution and completed that degree within six years—an insignificant difference when compared to the 2.1 percentage point increase from the pre-NCLB cohorts—1996 to 2000.1 Further, NCLB had no impact on the achievement gap: The Black-White six-year college-completion gap for the pre-NCLB 1996 cohort was 19.20 points compared to the 22.30 point gap for the 2006 cohort. These data also hold true for graduation within four years. Policymakers and stakeholders should move from a single-indicator system and employ multiple measures highly predictive of future student success: grade point average (GPA) and noncognitive skills, for example.

True Predictors of Success

GPA
Schools must be held accountable for the success of all students. Instead of focusing on standardized test scores, however, students would benefit more if schools focused on reliable predictors of future student success. More accurate predictors of success are GPA and noncognitive skills. Researchers argue that GPA may be a strong predictor of success due to its ability to capture content knowledge and skills critical to success, such as perseverance and self-control. A 2014 study conducted by William C. Hiss and Valerie W. Franks examined the outcomes of optional standardized testing policies at 33 public and private colleges and universities. They concluded that standardized tests are more likely to decrease the number
of college applicants than produce valuable predictive results. A better predictor of success, according to the study, is GPA, as college and university cumulative GPAs closely tracked high school GPAs (HSGPAs).

“College and university Cumulative GPAs closely track high school GPAs, despite wide variations in testing. Students with strong HSGPAs generally perform well in college, despite modest or low testing. In contrast, students with weak HSGPAs earn lower college Cum GPAs and graduate at lower rates, even with markedly stronger testing.”

Further, university students with stronger high school GPAs graduated from college at higher rates than students with weaker high school GPAs but much stronger testing.

Although the study refers to college-entrance standardized tests like the Scholastic Aptitude Test (SAT) and the American College Testing (ACT), the results demonstrate standardized test limitations in predicting success. Additionally, Geiser and Santelices of Berkeley’s Center for Studies in Higher Education, confirm high-school GPA is consistently the best predictor of four-year college outcomes:

“HSGPA is consistently the best predictor, followed by SAT II Writing scores, for both first- and fourth-year college grades, and this pattern holds for all entering cohorts, UC campuses and academic fields, with only minor exceptions.... High-school grades provide a fairer, more equitable and ultimately more meaningful basis for admission decision-making and, despite their reputation for ‘unreliability’, remain the best available indicator with which to hazard predictions of student success in college.”

Noncognitive Skills
GPA has proven successful at predicting future success because of its capacity to capture both cognitive skills and those critical to success (i.e. noncognitive ability). GPA not only captures mastery of content knowledge, but also skills not usually captured in tests—self-control, for example. Self-control is an example of a noncognitive skill. Noncognitive skills—sometimes referred to as “social and emotional learning,” “soft skills,” and/or “meta-cognitive learning skills”—consist of the skills not captured in cognitive tests such as aptitude tests, standardized tests, or course exams. Nonetheless, these skills are critical to academic success: earning course credits, for example, requires a set of behavioral skills, including self-regulation. Mastery of such skills has proven predictive of future academic success, without such skills, changes in cognitive ability may be unlikely. Growth in noncognitive skills has been tied to increases in course grades and future educational attainment. Noncognitive skills—depending on the study one employs—can include self-control, persistence, grit, optimism, curiosity, conscientiousness, social fluidity, and self-confidence—a range of personality and motivational habits.

Variables Impacting Noncognitive Skills
Noncognitive skills begin to develop in infancy, continue to develop through adulthood, and are malleable. This means that students can improve their cognitive skills and improve their chances at academic success through various programs (e.g. early childhood education and physical education) and strategies. Many noncognitive skills such as self-control, conscientiousness, self-confidence, and social fluidity are related to executive function, which is primarily located in the prefrontal cortex of the brain. The prefrontal cortex is critical in emotional and cognitive self-regulation, also known as executive function. The prefrontal cortex is most affected by childhood trauma and stress, and children raised in poverty are more likely to experience early trauma and or stress. In fact, gaps in noncognitive and cognitive skills between disadvantaged students and their peers can be traced back to adverse early environments. Trauma and stress negatively impact the development of noncognitive skills, but such impacts can be mitigated and skills can be improved through strategies and programs, including early childhood education.

Research conducted by James Heckman formalizes the notion that noncognitive skills foster the acquisition of
cognitive skills, and parental inputs affect the formation of both.\textsuperscript{11} Previous studies on the Abecedarian Project, Perry Preschool, Nurse Family Partnership program, and the Chicago Parent-Child program demonstrate the capability of early childhood investments to increase parental inputs and positively impact noncognitive skills. Treated students were more likely to graduate from high school, obtain more years of education, and attend a four-year college. Although early investments are expected to produce positive returns, returns can only be maximized if early investments are followed by later investments.

“But it is also essential to invest late to harvest the fruits of the early investment. Such dynamic complementarity helps to explain the evidence by Currie and Thomas (1995) that for disadvantaged minority students, early investments through Head Start have weak effects in later years if not followed up by later investments.”\textsuperscript{12}

Aside from investments in early childhood education, which has been proven to increase a child’s chances at future success, noncognitive skills can be improved further through a range of later stage interventions. Past successful interventions include implementing physical education programs, which stimulate the growth of connections in the prefrontal cortex and improve executive function.\textsuperscript{13} The following table is an example of some of the noncognitive skills-based strategies proven to raise student grades and GPAs. These strategies include: 1) discussing how the brain grows new connections and “gets smarter;” 2) praising a student’s efforts, rather than abilities; 3) emphasizing communal and cooperative goals over individualistic and competitive goals; 4) discussing long-term goals such as completing college; and 5) stressing contributions to society over self-oriented goals.

The below chart only captures a portion of the studies and strategies conducted in the field, but nonetheless, prove noncognitive skills are indeed malleable and impact cognitive ability, as measured by GPA and individual course grades. In addition to the strategies employed in the below chart, noncognitive skills are impacted by additional

<table>
<thead>
<tr>
<th>Selected Interventions with Academic Outcomes</th>
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<tbody>
<tr>
<td><strong>AUTHORS</strong></td>
</tr>
<tr>
<td>---------------------------------------------</td>
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<tr>
<td>Teaching students that intelligence can be developed (a growth mindset)</td>
</tr>
<tr>
<td>Good, Aronson, &amp; Inzlicht (2003)</td>
</tr>
<tr>
<td>Aronson, Fried, &amp; Good (2002)</td>
</tr>
<tr>
<td>Helping students to feel that they belong or are valued in school</td>
</tr>
<tr>
<td>Cohen et al. (2006; 2009)</td>
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<tr>
<td>Helping students to see how the curriculum is relevant to their own lives</td>
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<tr>
<td>Hulleman &amp; Harackiewcz (2009)</td>
</tr>
<tr>
<td>Helping students to set goals, identify obstacles, and learn self-control strategies</td>
</tr>
<tr>
<td>Oyserman, Bybee, &amp; Terry (2006)</td>
</tr>
<tr>
<td>Brigman &amp; Webb (2007)</td>
</tr>
</tbody>
</table>

\textsuperscript{NOTE: All interventions were controlled randomized trials}

variables such as those listed below. The chart below lists some of the factors impacting noncognitive skills. Both charts demonstrate that a purposeful focus on improving noncognitive skills through school resources and practices impact the growth of noncognitive skills.

The data they collect and in the methods used to track and improve growth.

**CORE**

CORE*, a nonprofit organization composed of ten California school districts, believes noncognitive skills are integral to helping students succeed in college, career, and life.23

<table>
<thead>
<tr>
<th>Indicator</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>Early Childhood Education</td>
<td>Impacts the development of noncognitive skills. Noncognitive skills impact cognitive ability.</td>
</tr>
<tr>
<td>Parent Engagement</td>
<td>Associated with lower rates of high school dropout, increased on-time high school completion, highest grade completed, and has been found to have a strong association with noncognitive skills such as self-esteem and susceptibility to peer pressure. Heckman also finds that parental inputs affect the formation of noncognitive skills.</td>
</tr>
<tr>
<td>School Climate</td>
<td>There is a significant relationship between school climate and student engagement. Engagement is a noncognitive skill and a predictor for academic success.</td>
</tr>
<tr>
<td>Class Size</td>
<td>Class size impacts noncognitive skills such as student engagement.</td>
</tr>
<tr>
<td>Specialized Instructional Support Personnel (SISP)</td>
<td>SISP, specifically mental health services, have the ability to mitigate childhood trauma and, thus, improve noncognitive skills.</td>
</tr>
<tr>
<td>Physical Education</td>
<td>Physical education along with moderate to vigorous physical activity has been proven to strengthen executive function.</td>
</tr>
</tbody>
</table>

**Noncognitive Skills in the Field**

The focus on noncognitive skills, particularly through early education programs, has shown promising results. Early childhood education has proven successful at addressing deficiencies in noncognitive skills and raising cognitive test scores. Heckman’s study of Perry Preschool uncovered early childhood education’s ability to increase motivation and reduce negative externalizing behaviors, positively impacting outcomes in education, employment, and health. It is no surprise that strategies and programs to develop noncognitive skills have grown in popularity. A Mathematica study found that over 195 instruments, including surveys, are used to measure growth in noncognitive skills. Current examples of schools and organizations examining and measuring noncognitive skills include the California Office to Reform Education (CORE) and KIPP charter schools. These groups vary in

CORE focuses on four noncognitive skills: growth mindset (a student’s belief about their ability to achieve and the connection between effort and success), self-efficacy, self-management, and social awareness. CORE collects data on noncognitive skills through the use of self-report student surveys. CORE piloted student self-report surveys in the spring of 2014 and plans to begin reporting on the four areas in the spring of 2016. School effectiveness will be determined by the following:

**Academics (60 percent)**

1. Standardized test scores
2. Graduation rates
3. Middle school persistence (rate of 8th graders who go on to 10th grade)

**Social and Emotional Factors (20 percent)**

1. Chronic absenteeism rates
2. Suspension/Expulsion rates
3. Noncognitive factors
School Culture and Climate Factors (20 percent)
   1. Student, staff, and parent surveys
   2. English language redesignation rates
   3. Rates of identifying special education students

   **KIPP**
   KIPP* charter schools only recently began to report on seven noncognitive skills: zest, grit, optimism, self-control, gratitude, social intelligence, and curiosity. One method that KIPP uses to promote growth in the seven character strengths is to require educators to model the seven skills in the classroom. Growth is then measured on a Character Growth Card.

   Schools or organizations seeking to implement programs and/or strategies that impact noncognitive skills and employ noncognitive skills as a tool to inform education practice and policy should be aware, however, that the use of self-report surveys to measure such skills may produce paradoxical results due to reference bias, according to a study conducted by West et al. Another way to capture data on noncognitive skills might be to combine surveys or indexes with data on impactful variables such as parent engagement and early childhood education. Further, there is no consensus on which noncognitive skills are the most salient, which strategies are the most effective, nor is there consensus on a preferred measure of noncognitive skills.

   **Moving Forward**
   NCLB accountability proved unable to predict and grow student success. GPAs’ capacity to capture salient skills and predict future academic success, combined with noncognitive skills’ predictive power, makes GPA and measures of noncognitive skills more robust accountability tools than standardized test scores and instruments worthy of focus. Previous research demonstrates that a focus on noncognitive skills increases cognitive skills and, ultimately, narrows the achievement gap. Policy makers and practitioners would be able to narrow achievement gaps effectively and better predict future success by working on noncognitive skills and giving greater weight to GPA. Schools and districts must be held accountable for student success—success beyond increasing standardized test scores.

   Families and communities would be better served if state, district, and school report cards moved from using a single indicator of success to multiple indicators. These report cards should be expanded to include data on student GPA, as well as noncognitive skills scores, disaggregated by race, income, gender, ability, and migratory status. Further, stakeholders would be better able to pinpoint the factors influencing student GPA and noncognitive skills if report cards were expanded to include data on the variables known to impact noncognitive skills. Salient indicators include: 1) percentage of students enrolled in early childhood education; 2) parent engagement; 3) school climate; 4) access to SISP; 5) class size; and 6) physical education. Additional indicators can be found at http://www.nea.org/gpsindicators. Finally, accountability report cards must also include data on students’ access to college gateway courses like algebra I, algebra II, geometry, trigonometry, calculus, biology, chemistry, and physics. College gateway courses provide the foundation needed to achieve college success, noncognitive skills improve a student’s chances at success, and GPA better predicts success.

   The lessons from NCLB are clear: standardized tests have limitations, more robust predictors of academic success exist, and multiple measures of success can provide a clearer picture of what is happening in a school, in comparison to test scores alone.

   *The examples from CORE and KIPP were chosen based on their use of noncognitive factors and should not be construed to represent NEA policy or position.*
Notes


3 Ibid


12 Ibid


Notes (continued)


