

The Heckman Equation



Lacking character, American education fails the test.

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For decades, there has been a great deal of debate about how to improve educational outcomes for America's children. Much of it has focused on tactics—smaller class sizes, better trained teachers and greater accountability, to name a few. Little research has focused on the fundamental questions of what skills create successful and productive people and what are the best ways to develop and measure these skills. As a result, we do a lot of measuring that doesn't measure up.

We live in an era of widespread testing in which achievement tests are used to measure the skills of people and certify their suitability for admissions and qualifications for a variety of opportunities and positions. They are also used to measure the performance of schools, entire school systems and nations.

Much depends on the outcomes of these tests, and education is naturally shaped by them. Unfortunately, most are poor predictors of success in life because they measure only one skill—cognitive achievement—not the full range of skills that make a person valuable in family life, community life and the workforce. There is hard evidence that non-cognitive—or character—skills matter greatly. And, there is widespread evidence that failing to systematically develop, measure and reward positive character traits is failing America—in schools and in the workforce.

Improving the American educational system requires a fundamental reexamination of which skills matter in life, in what combination, and how and when best to form them, as well as how to more effectively align measurements of school achievement with the development of skills that drive adult achievement.

Skills are multiple, dynamic and complementary.

Achieving better outcomes in education, health and economic productivity depends on developing a wide range of skills in individuals. The ability to acquire and retain knowledge is just one of those skills. Character—perseverance, motivation, self-esteem, self-control, conscientiousness and forward-thinking behavior—is another set of skills.

Yet, character remains largely undeveloped and untested in the American education system. This is a mistake that must be corrected. Evidence shows that, in many cases, character drives cognitive achievement and a variety of adult outcomes, such as employability, earning capacity and health.

Numerous studies have documented that cognitive skills, usually measured by scholastic achievement tests, predict schooling, wages, participation in crime, health and success in many facets of life. Non-cognitive skills have also proven to be predictors of the same outcomes—with roughly the same strength.

Cognition and character work together to determine health and social and economic status. For example, the higher the levels of cognitive and character skills, the more likely the individual will choose and succeed in a white-collar job.

This was borne out in our recent work on the economic efficacy of the GED. Those who didn't graduate high school but obtained a GED were less successful economically than high school graduates. This had more to do with the package of cognition and character than any stigma related to the GED (after factoring out that many GED certificates are earned in prison).

Individuals who persist in graduating high school are more likely to have character traits that help them persist on the job. They show up, they control their impulses, they work toward a goal and they work well with others. Those with GEDs may be as smart or smarter, but they tend to be characters rather than people with character who have greater value and potential for employment.

Simply put, cognition and character drive educational success that ultimately results in economic success for individuals and society at large. The same psychological traits that predict occupational achievement are also strongly predictive of a variety of diverse behaviors, such as smoking, employment, teenage pregnancy, wages and many other aspects of economic and social life—all of which affect local, state and national economies.

Character matters.

In many cases, character skills acquired very early in life and strengthened throughout life are more important to a successful future than purely cognitive skills.

Our recent analysis of the British Cohort Study clearly demonstrates the effects of early childhood experiences and the cognitive-social skills package. The British Cohort Study is a survey of all babies born after the 24th week of gestation from Sunday, April 5 to Saturday, April 11, 1970 in England, Scotland, Wales and Northern Ireland. There have been seven follow-ups to trace all members of this birth cohort: in 1975, 1980, 1986, 1996, 2000, 2004 and 2008. We looked at information from the birth survey in 1970, measurements from the second sweep in 1980 and outcomes from the fifth sweep in 2000.

Birth information took “family endowments” into account—parental resources that formed the foundation for early learning experiences. These include the mother’s age and education, father’s social class, and parity at birth. This was supplemented with family information at age 10 (the second sweep in 1980) that included gross family income, whether the child had lived with both parents since birth and the number of children in the family at age 10.

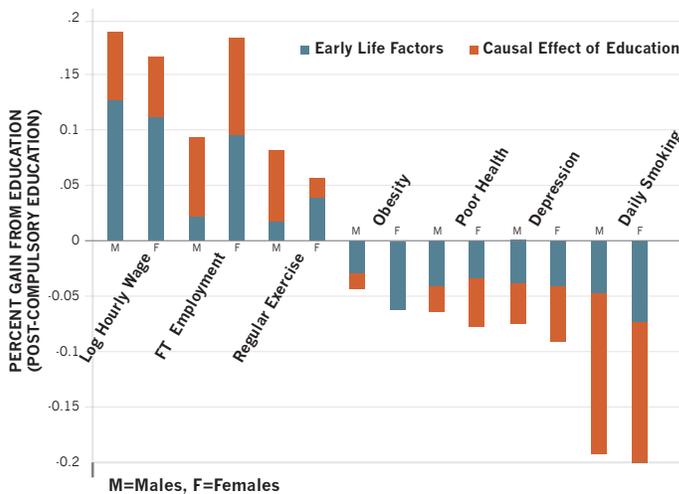
Measurements in the second sweep included scores on standard cognitive tests, such as math, English, language comprehension and word definition. Also included were measurements of character skills from tests on control, perseverance, cooperativeness, completeness, attentiveness and persistence. These were supplemented by basic physical measurements in height, weight, head circumference and the height of the child’s parents.

The fifth sweep in 2000 surveyed adult outcomes, taking into account the length of schooling, labor market outcomes in employment and wages, healthy behavior and health status.

Our analysis found that far too much credit is given to cognitive skills when character skills and early life experiences often play pivotal roles in shaping economic and health outcomes.

The chart below shows a clear correlation between education, health, and those who display healthy behaviors. The length of each bar represents the difference in each outcome between high- and low-levels of education. More educated individuals are more likely to work full time, earn higher wages and exercise regularly. In addition, they are less likely to be obese, smoke daily, be in poor health and suffer from depression. The key issue is to understand how much of the difference between high- and low-educated individuals is caused by education, and how much reflects early life factors (cognitive skills, character skills and early health) and family background characteristics. This is fundamental; if education has a causal effect, then increasing the educational level of the population would be an effective health policy. If, instead, more educated individuals are healthier because they developed better skills in childhood, then early intervention is a more effective strategy for reducing health disparities in adulthood.

Disparities by Education (Post-compulsory Education)



Source: Conti and Heckman (2010). Author’s calculations using BCS70.

A closer look reveals the drivers of each particular outcome according to gender. While each bar reflects the total difference classified by education, the dark portion quantifies the causal effect of education—what education controlling for early life factors produces—and the light portion shows the effect of early life factors. Early life factors account for at least half of the adult disparities in poor health, depression, obesity and wages.

Education should be held accountable for developing the whole person.

It is clear that in the drive to hold students, parents, teachers and schools accountable for achievement, we have made them accountable for developing only some of the skills necessary for a productive life. We have placed much more emphasis on developing cognitive skills while neglecting character skills that, when combined with cognitive skills, make for individual success.

In light of this, we must admit that standardized testing as it exists today is short-sighted and an ineffective measure of the full set of skills one needs to be prepared for success in life. In fact, we have strayed far from the original intent of such tests and would be better served by taking a more balanced approach.

For the early psychometricians—the pioneers of the measurement of skill—cognitive achievement was never intended to be the sole predictor of success. Alfred Binet, whose work was the basis for today's IQ tests, wrote that success in school “admits other things than intelligence; to succeed in his studies, one must have qualities which depend on attention, will, and character.” (1916, P. 254)

Moving every child forward into a productive adult.

Doing better for all children means doing things differently. First, we must acknowledge that programs like No Child Left Behind that define success based on achievement tests have wasted a great deal of money with few benefits. Many disadvantaged children and many of the schools that serve them fail because they had less than a fighting chance to succeed. A large proportion of disadvantaged children arrive at kindergarten already behind due to poor early childhood development. Disadvantaged children start kindergarten with nearly half the vocabulary of their more

affluent peers and often lack the character skills to thrive in school. That is the beginning of the achievement gap, and it is difficult and costly to close.

A more effective strategy is to prevent the achievement gap with quality early childhood development for disadvantaged children from birth to age five. This includes early health, early learning and parental education. Quality early childhood development helps parents acquire the resources and skills to foster strong cognitive and character skills in their children, providing a foundation for success in school, career and life. It is far more cost-effective than successive rounds of remediation in school, not to mention wave upon wave of ineffective education reform.

Second, we must insist that schools incorporate social and emotional learning in K-12 instruction. Character can be developed and should be measured long before the ultimate test of employability in the job market. Individuals cannot compete for jobs without intelligence and character, and America cannot compete in the global marketplace without a first class workforce. People and society deserve accurate measures of their potential to create prosperity.

Finally, we can achieve greater educational, health and economic outcomes only when we recognize, value, develop and measure the full range of skills and abilities that make people successful. The alternative is to inch along on a yardstick of incomplete measurement with a series of tests that ultimately fail us.