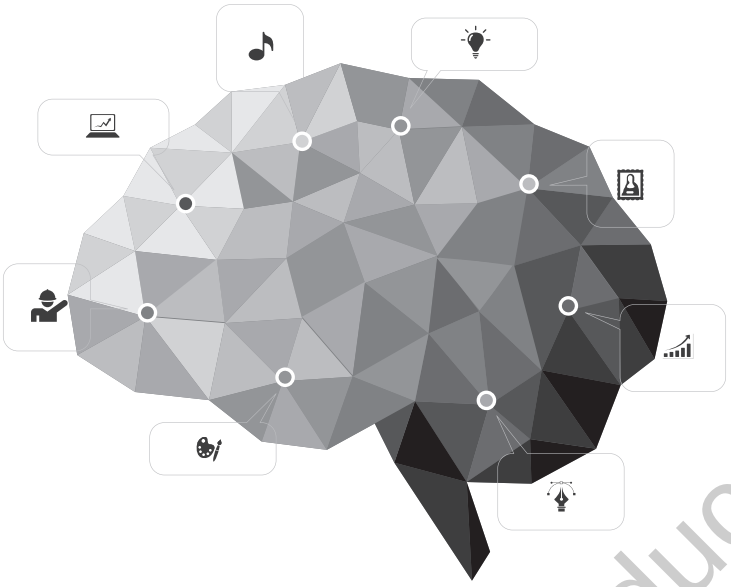

COUNTING WHAT COUNTS

REFRAMING EDUCATION OUTCOMES

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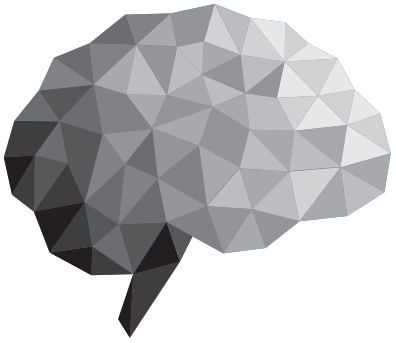

INTRODUCTION

The Danger of Misguiding Outcomes: Lessons From Easter Island

YONG ZHAO

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The stone statues on Easter Island have a lot to teach us about education. The hundreds of stone statues on Easter Island have been one of the greatest mysteries on earth (Diamond, 2005). Located in the southern Pacific Ocean, Easter Island is over 2,000 miles away from the closest land, Chile, and 1,400 miles away from the nearest island, which is uninhabited. It is also a very small island, only fifteen miles long and ten miles wide. Yet, on this remote and small island are over eight hundred giant statues carved out of stone. They are large and heavy—ranging from fifteen feet to seventy feet and from ten to two hundred-seventy tons. The largest ever erected weighed over eighty tons. Some of them have a separate headpiece, a cylinder of red scoria that weighs up to twelve tons. When the first European explorers discovered it in 1722, the island was almost uninhabited, with just a few thousand people living in poor conditions without any advanced technology. The explorers did not find any large animals or trees that could be used to help move and lift the statues.

How could the islanders have carved, transported, and erected the statues because "organizing the carving, transport, and erection of the statues required a complex populous society living in an environment rich enough to support it" (Diamond, 2005, p. 81), and such a society was apparently nonexistent when Easter Island was discovered?

Early Europeans did not believe that the "Polynesians, 'mere savages,' could have created the statues or the beautifully constructed stone platforms" (Diamond, 2005, p. 82). They attributed these grand works to other civilizations and even intelligent space aliens. Unless you believe in aliens, Pulitzer Prize–winning scientist Jared Diamond (2005), a professor of geography and physiology at the University of California–Los Angeles (UCLA), provides a compelling and sobering account of how a civilization destroyed

it was too late. Blinded by the short-term glory of their magnificent statues, they were preoccupied with creating even more magnificent ones while the last palm tree was cut down. Equally blinded by the potential of common standards and testing programs to improve test scores, reform leaders are ignoring the real challenges facing our children: poverty, unsafe neighborhoods, and unequal access to educational resources.

Ultimately, just like Easter Island ended up a barren island filled with big statues, countries may succeed in raising test scores, but they will likely end up as nations of great test takers in an intellectually barren land; test scores do not count nearly as much as reformers believe for the success of individuals or nations. Moreover, great test scores can come at a huge cost.

Problems With Current Measures

What is measured by today's tests is "almost exclusively cognitive skills" (Brunello & Schlotter, 2010, p. 31). As practiced today,

> World-class education is largely measured by the high test scores of students in one country relative to those in other countries. That is, in evaluating world-class performance, those countries and schools whose students earn the highest scores on common achievement tests set the benchmarks for other countries. In this respect, a world-class educational system is judged strictly by measures of cognitive achievement, rather than on any of the other types of human development that schools produce. (Levin, 2012, p. 270)

Judgments based solely upon measurement of cognitive achievement surely have their limitations. In five critical ways, the focus on assessing cognitive achievement fails to address the skills and competencies a world-class education must deliver.

More Than Just Test Scores: The Importance of Noncognitive Skills

One primary purpose of education is to prepare students to become productive citizens. What makes one productive, however, is much more than the cognitive proficiencies measured in test scores. There is growing evidence from international longitudinal studies (Brunello & Schlotter, 2010; Heckman, 2008; Levin, 2012) that clearly suggests noncognitive factors play a critical role in one's success as a citizen. Noncognitive factors such as personality traits, motivation, interpersonal skills, and intrapersonal skills have been found to correlate significantly with educational attainment, workplace productivity, and life earnings. As a result, among the most highly valued personal qualities, academic achievement ranked lower than communication skills, motivation/initiative, teamwork skills, and leadership skills (Kuhn & Weinberger, 2005).

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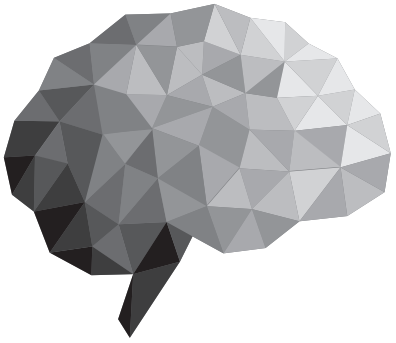

CHAPTER 3

Personal Matter: Personality Traits

DAISY ZHANG-NEGRERIE

"He is to the atom what Darwin is to evolution, Newton to mechanics, Faraday to electricity and Einstein to relativity. His pathway from rural child to immortality is a fascinating one" (Campbell, n.d.). This is how John Campbell (1999), author of the 515-page biography *Rutherford: Scientist Supreme*, describes New Zealand–born chemist Ernest Rutherford. Yes, Rutherford's works earned and ensured his immortality. He is one of the greatest scientists of all time, who has arguably received the highest number of awards and honors. After his death in 1937, he was honored by being interred with the greatest scientists of the United Kingdom, near Sir Isaac Newton's tomb in Westminster Abbey.

After being awarded the Nobel Prize in 1908, Rutherford continued to perform the most elegant experiments at the Cavendish Laboratory in Canada and further trained numerous future Nobel Prize winners, including James Chadwick, Patrick Blackett, G. P. Thomson, and Ernest Walton, toward their great achievements. He is the only scientist who conducted his most famous experiment—the "gold foil experiment"—after being awarded the Nobel Prize.

But Rutherford was not a born genius. He was not always successful in his attempts. In 1886, fifteen-year-old Ernest applied for the Marlborough Education Board scholarship to Nelson College, the only scholarship that was available to assist a local boy to attend secondary school, but was rejected. On his second attempt the following year, he was awarded the scholarship. At age seventeen when he applied for one of the ten scholarships given out by the University of New Zealand, he was, again, rejected; on his second attempt the following year, he succeeded. After college, Rutherford became a school-teacher at Christchurch Boys' High School but failed to obtain a permanent position there after three rounds of applications, after which he tried his chances to go abroad

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the results of which are summarized in table 3.1. (For a listing of this research, please see the empirical research section at the end of this chapter.)

Table 3.1: Summary of Research Findings on the Correlations Between Big Five Factors and Academic and Workforce Success

Big Five Traits	Academic Achievement	Workforce Performance
Conscientiousness	Conscientiousness is a trait that has been drawn upon as a main psychological resource in learning and education. Among the five traits, conscientiousness is found to be the most strongly associated with academic success. It is consistently related to achievement from preschool through high school, postsecondary level, and adulthood, even though there are exceptions in certain case studies. Narrow traits or facets associated with conscientiousness that positively affect academic achievement are persistence, dutifulness, self-discipline, and motivation in achievement-attainment.	Of the five factors, conscientiousness has been shown to be the most consistent and significant predictor of workplace performance across a wide range of job types. Valued workplace behaviors such as leadership and organizational citizenship and lack of undesired behaviors such as procrastination are connected to this factor, and contribute positively to the overall job performance.
Openness/Intellect	Among the five factors, openness is the next strongest trait related to academic achievement after conscientiousness. It is positively correlated to knowledge and achievement. It may facilitate the use of efficient learning strategies, which in turn affects academic success. The studies on foreign language conducted by Furnham (Furnham & Monsen, 2009) report openness to be the most significant predictor followed by conscientiousness to a lesser extent degree; however, Heaven and Ciarrochi (2012) predict this trait to be important only to those with high ability but not in low ability. Some studies show no statistically significant correlation between openness and academic achievement, and some even predict a negative correlation, arguing that the creative and imaginative nature of open individuals may sometimes be a disadvantage in academic settings.	Openness is found to be positively related to successful training activities. Openness is also connected to creativity and an optimistic attitude toward learning, therefore positively contributing to job performance.

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Big Five Traits	Academic Achievement	Workforce Performance
Extraversion	There does not seem to be a relationship between extraversion and college performance, although some studies have found evidence for a small, negative correlation. The detrimental effect of extraversion on educational attainment begins at the university level. Extraverted children before grade 7 outperform introverted children; however, among adolescents and adults, some research has shown that introverts show higher achievement than extraverts, as avoidance of intensive socializing becomes advantageous. Extraversion correlates the most significantly to learning a foreign language for university students. Extraversion is positively related with elaborative processing.	Decisively different from the academic achievement result of this factor, extraversion is found to be strongly and positively correlated with occupations that require social interactions, training proficiency, and leadership abilities. It is also related to an individual's job satisfaction. High levels of satisfaction for extraverted people are in part due to their ability to connect and enjoy the interactions in the social environment with their colleagues, while introverts often report less satisfaction for these very reasons.
Neuroticism	Neuroticism is shown to predict poorer academic performance among school-aged children. Analysis of thirteen-year-old students suggests a negative correlation between neuroticism and academic achievement, particularly for the anxiety and impulsiveness facets, although some studies of both school children and university students have failed to find any significant correlations. The negative emotionality might be compensated by other moderating factors such as self-control and motivation.	Those who exhibit neurotic behaviors tend to be less happy and experience low job satisfaction, both of which influence the ability to perform well in tasks. On the other hand, neuroticism is helpful in jobs that require the formation of creative and novel ideas.
Agreeableness	Research data have shown that the correlation between agreeableness and academic achievement is consistently insignificant. But this factor is important for character training.	Agreeableness has been shown to predict performance in interpersonal-oriented jobs, but negatively correlated with leadership abilities or within occupations that require a certain degree of disagreeableness for success.

In addition, the narrow traits of self-control, perseverance, self-confidence, being proactive, tolerance, self-efficacy, and grit were found to have a more direct correlation with academic and workplace success (Duckworth, Peterson, Matthews, & Kelly, 2007; Gough, 1996; Middleton & Guthrie, 1959; Oakland, 1969; Rutkowski & Domino, 1975; Schmit & Ryan, 1993; Strayhorn, 2013). Other narrow traits mediated by the

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Table 3.2: Narrow Traits Derived From the Abridged Big Five–Dimensional Circumplex (AB5C)

	Extraversion		Agreeableness		Conscientiousness		Emotional Stability		Openness to Experience	
	I+	I–	II+	II–	III+	III–	IV+	IV–	V+	V–
I+	spontaneous talkative extraverted		cordial amiable friendly	domineering bossy hotheaded	industrious diligent practical	reckless lawless careless	self-assured certain decisive	excitable uncontrolled romantic	imaginative original strong-minded	chauvinistic reactionary
I–		silent introverted closed	modest meek patient	cunning selfish aloof	careful perfectionistic cautious	lax work-shy absentminded	sober-minded controlled rational	insecure depressed unbalanced	philosophical analytic contemplative	conservative slavish unimaginative
II+	cheerful sociable jovial	tranquil composed	mild peaceful obliging		responsible tidy well-mannered	nonchalant unsuspecting	stable calm even-tempered	sensitive emotional tender	freedom-loving subtle broad-minded	obedient docile credulous
II–	fierce explosive wild	unsociable suspicious inscrutable		unaccommodating stubborn irreconcilable	stern choosy	headstrong abnormal unmannered	tough despotic insensitive	irritable changeable moody	provocative ironical radical	stingy materialistic narrow-minded
III+	energetic busy firm	reserved serious thoughtful	caring polite fair	ambitious thrusting	orderly precise punctual		balanced resolute realistic	worrisome troubled	constructive interested full of character	conventional dogmatic law-abiding
III–	rash uninhibited loud	apathetic dull uninterested	flexible pliable	egotistical recalcitrant arrogant		disorderly irresponsible lazy	laconic	unstable irrational capricious	nonconforming disobedient undogmatic	uncritical superficial hypocritical
IV+	vigorous optimistic enterprising	unexcitable	tolerant kind honest	autocratic heartless inflexible	consistent tenacious purposeful	carefree unobstructed opportunistic	imperturbable cool-headed		critical inventive versatile	old-fashioned presumptuous
IV–	impulsive gossipy indiscreet	somber withdrawn shy	gentle sensitive permissive	ill-tempered quarrelsome snarly	finicky	chaotic inaccurate scatterbrained		panicky nervous vulnerable	poetic idealistic artistic	small-minded shortsighted vacuous
V+	temperamental enthusiastic dynamic	individualistic	humane loyal unselfish	rebellious demanding self-willed	observant inquisitive scrupulous	undisciplined extravagant eccentric	independent fearless self-confident	sensitive affected perceptible	creative reflective	
V–	chatty	timid moderate insincere	willing indulgent good-natured	intolerant malicious greedy	dutiful disciplined respectable	indifferent unreliable deceitful	unemotional callous	anxious fearful dependent		obsequious overpolite

Source: De Raad & Schouwenburg, 1996, p. 323.

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transnational coporate human resource managers may explain the definition's tendency toward a competitive conceptualization. A small validation sample of fifty-four participants is one reason the GCC has weaker psychometric properties than other measures in this section. However, the GCC's subjective, external evaluation may make it most facile for K–12 settings, which already delegate broad powers that allow educators to assess subjectively. The dichotomous nature of the items makes the GCC an efficient measure to detect if a student does or does not have one of the eighteen competencies it includes.

Global Citizenship Scale

If we are interested in measuring one's readiness to contribute to solutions for problems of global significance, Duarte B. Morais and Anthony C. Ogden (2010) provide a unique global competence proxy measure for three reasons. The Global Citizenship Scale (GCS) is the lone measure to (1) measure global citizenship, (2) specify global competence as a domain, and (3) capture action taking. Table 6.6 reports reliability coefficients and seven examples from the thirty-item instrument that captures the three domains of the GCS:

1. **Social responsibility—**Perceived level of interdependence and social concern to others, society, and the environment
2. **Global competence—**Employs Hunter's definition and includes self-awareness, intercultural communication, and global knowledge as subdomains
3. **Global civic engagement—**The demonstration of action or predisposition toward recognizing local, state, national, and global community issues and responding through actions such as volunteerism, political activism, and community participation; subdomains include involvement in civic organizations, political voice, and glo*c*al civic activism. Scottish sociologist Roland Robertson helped coin both glo*b*alization and glo*c*alization, the latter of which reflects a synthesis of global and local aims (Kumaravadivelu, 2008). Glocalizing recasts curriculum from a traditional, local orientation to a global one (Zhao, 2009b).

Development of the GCS included two face-validity trials with experts, exploratory and confirmatory factor analyses with samples from 222 university students in twenty-two courses (eleven each with and without embedded international travel) at five campuses of Pennsylvania State University, and several applications of the nominal group technique. However, during the validation process, Morais and Ogden (2010) found social responsibility to be an unclear domain, collapsing its theorized subdomains global justice and disparities, altruism and empathy, and global interconnectedness and personal responsibility into the unidimensional social responsibility. Still, the researchers declared the measure ready to use for assessing study abroad outcomes, particularly with pre- and posttest designs. The GCS's stated purpose as a study abroad measure may problematize its use in K–12 schools.

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