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Research Matters / Measuring What's Inside

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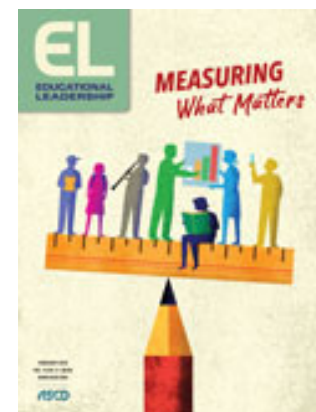
Why don't we measure students' intrinsic motivation and curiosity?

When 7,000 Chicago-area students sat down for a standardized test a few years ago, they got a pleasant surprise: If they did well, they'd receive rewards ranging from a trophy to \$20. It worked: The students (randomly chosen to participate in a study) demonstrated, on average, 5–6 months more learning than students not promised rewards, leading the economists who conducted the study to suggest they'd solved "the urban school problem"—bribe kids and they'll test better (Levitt et al., 2012).

But there may be a different takeaway. These students had *no prior knowledge* of the rewards, so they didn't prepare any differently for the exam, or learn anything more. They just took it more seriously, and miraculously, looked six months smarter. Yet this was the same type of high-stakes exam that was used to rate their schools, leaders, and teachers—which might lead us to wonder how much trust to place in standardized measures and the accountability systems built upon them.

On top of that, as I reported in a previous column (Goodwin & Hein, 2016), the two key indicators that drive most college acceptance decisions—high school GPA and entrance exams—only explain 20–25 percent of the variance in student performance in college. The rest of what predicts student success remains an "X-factor," yet research points to a handful of student attributes that seem to be powerful predictors of college success, including having a can-do attitude (feeling a sense of control over one's life and pursuing goals), a studious orientation (avoiding procrastination and buying into the purpose of a college education), and being an active learner (engaging in classroom dialogue and talking about one's studies outside of class).

Together, these factors account for about *45 percent* of college success. Furthermore, a study of 5,000 students in the 1980s (Willingham, Young, & Morris, 1985) found that one key attribute—"follow-through" in high school activities—was more predictive of student success than any other variable


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examined. It didn't matter if the area where the student demonstrated persistence was chess or cheerleading, just that they stuck with something for four years, demonstrating growth, and moving into a leadership role.

The Fire Inside

Many of the factors that seem to drive student success reflect various forms of intrinsic motivation, which may only reveal itself when students are on their own, without parents bird-dogging them to do their studies. That's when those with a fire inside them or belief in their own ability tend to shine, and those without tend to stumble.

It's strange, then, that we seldom measure or track students' intrinsic motivation—despite the fact that a meta-analysis of factors related to student achievement (Marzano, 2000) found that student interest and motivation accounted for more of the variance in student achievement than teacher quality (14 versus 13 percent). Yet according to a longitudinal study (Gottfried, Fleming, & Gottfried, 2001), the longer students stay in school, the less motivated they are to learn in their core subjects. Just at the time students' coursework ought to engage them in rich, meaningful learning—from the mysteries of science to the deep experiences of humanity captured in literature—they grow less curious, less active as learners, and less able to find meaning in their learning, the very things we know will make them successful later in life.

Getting Smarter about Intelligence

A century ago, the prevailing view of academic success was that it's simply a matter of smarts. As Sir Francis Galton, father of intelligence research, sniffed in 1870, "There can hardly be a surer evidence of the enormous difference between the intellectual capacity of men than the prodigious differences in the numbers of marks obtained by those who gain mathematical honors at Cambridge" (p. 16). For Galton, even at Cambridge, some students were smart and some were dumb.

Modern science has chipped away at that assumption, revealing that personality characteristics, including persistence, account for four times the effect on student success than does IQ, as British and Swiss researchers von Stumm, Hell, and Chamorro-Premuzic found (2011). These researchers wondered if *something else* might drive student success—something like motivation directed toward learning. Following a hunch, they analyzed 11 studies of student responses to the Typical Intellectual Engagement scale—a measure of desire to solve complex problems—and compared those responses with the students' success in school. After crunching the numbers in many ways, they concluded that curiosity itself represents a "third pillar" of academic achievement—something just as important as intelligence or effort.

Curiosity also contributes to other positive life outcomes, including better job performance, better relationships, leadership ability, greater persistence, goal orientation—perhaps even longevity, as I reported in a previous column (Goodwin, 2014). However, researcher Susan Engel (2015) discovered that the longer students stay in school, the less curiosity they demonstrate, just as with intrinsic motivation.

Can We Measure What Really Matters?

When I set out to write this column, I'd hoped to find all sorts of interesting examples of school systems measuring students' intrinsic motivation or curiosity to guide teaching and learning, especially with the so-called "fifth indicator" built into the Every Student Succeeds Act providing an opportunity for states to creatively collect data on so-called "soft skills."

Yet few examples emerged. It's not that there aren't scales out there to measure all these concepts; there are. It's just that to date, they've not been used widely in schools. And frankly, it may be for the best that such scales aren't being used in accountability systems, since it would likely be counterproductive to use extrinsic rewards (akin to economists bribing students) to encourage intrinsic motivation. Nonetheless, given all the positive outcomes for curiosity—not to mention how easy it is to manipulate standardized achievement scores and these scores' limited predictive power for later student success—it may be time for school systems to become more curious about how curious their students are. Indeed, this may well be the new frontier of educational measurement.

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