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# Should U.S. Panic Over Latest International Creative Problem-Solving Tests Scores?

*The gap between U.S. and Asian student test scores reflects the reality that the way students operate in school often has little to do with how they operate in real life*
By Norman Eng

U.S. educators may be surprised to see that students in Asian countries scored significantly higher on creative problem-solving tests than American students, but they shouldn't be. It merely reinforces what most of us have long known: School and work often have nothing to do with one another.

The results from the *Programme for International Student Assessment* (PISA) 2012 Creative Problem-Solving exam found that U.S. 15-year-olds scored above the international average, but at 18th place, still lag behind the top seven education systems (Singapore, Korea, Japan, Macao, Hong Kong, Shanghai, and Taipei, respectively), all of which are in Asia. Educators and analysts may wonder how a nation like the U.S., which prides itself on creativity, innovation, and individuality, could possibly fall below collectivist systems that emphasize traditional instruction and conformity.

The truth is more complex. First, unlike in the U.S., students in Japan, Korea, and Singapore actually spend extended periods of time learning fewer topics, an approach that Common Core State Standards developers have recognized and attempted to duplicate. Instead, Asian systems focus on the depth—rather than breadth—of topics, which allows them to manipulate information beyond memorization. A typical seventh-grade textbook in Japan, in fact, has less than half the amount of pages (200) as one in the U.S. (475).

Second, lower U.S. scores do not necessarily mean East Asian students are more creative. In fact, their high scores, especially those in Shanghai, may not even reflect the norm in China, as OECD Deputy Director of Education Andreas Schleicher has admitted. The gap reflects the sad reality that the way students operate in school often has little to do with how they operate in real life. This is true in U.S. as well as in many top-performing education systems abroad. Learning in school is largely characterized by narrow, detached, and contrived experiences, whereas work—especially the highly skilled jobs that drive the economy—incorporates more active, cross-disciplinary, and out-of-the box thinking.

Such mental processes characterize the work of entrepreneurs like former Apple chief executive Steve Jobs and SpaceX chief product architect Elon Musk, according to a *Fortune* magazine article. They leverage their "deep understanding of technological possibility, strong design instincts, a clear grasp of the economic ecosystem surrounding a potential product, and an uncanny ability to enter the head of a future customer" to produce innovations like the iPod or launch vehicles for the International Space Station.

Students rarely experience this sense of possibility and ownership while at school—even less so in a high-stakes accountability system. The thousands of families who opted out of the recent Common Core state tests highlight the growing disenchantment with the U.S. education system.

Is it any wonder so many creative-types, including Jobs, Bill Gates, and Mark Zuckerberg decided to bypass college to do something different?

Third, Asia's market demand may also explain their relatively lower rate of innovation, despite their students' higher test scores. China's economy remains driven by manual labor and low-cost and low-margin manufacturing, so firms tend to seek many more workers than managers or thinkers. These "top-light" firms, as MIT Sloan School of Management professor Yasheng Huang calls them, are more akin to factories than startups. Moreover, government agencies hire a significant portion of Chinese college graduates, who compete fiercely for civil service positions. The reality is that firms rarely leverage students' creative problem solving potential.

Fourth, the cultural emphasis on hierarchical authority, social relations, and group harmony (over frankness and honesty) can also inhibit graduates' creativity and individuality. Age-based seniority runs deep in most Asian institutions. In fact, many Koreans, when meeting strangers or new colleagues, will quickly establish each other's age to work out how they should behave and speak to each other, according to a 2012 article in the *Wall Street Journal*. In Japan, subordinates may make decisions only if they reflect what their bosses would have done. This hierarchical structure also contributes to the stifling of talent, particularly among those who have just graduated.

Finally, research suggests tests like PISA's creative problem-solving exam have little predictive value to workplace productivity; in fact, they predict only about 6 percent. More important is the drive to create something that solves a real problem. These characteristics, which include both cognitive and non-cognitive skills, must combine with the right external conditions such as culture, market demand, organizational environment, and policies.

Right now, the U.S. still leads the world in that regard. Its free market policies, individualistic culture, and entrepreneurial spirit have been compensating what it lacks in public education for a long time. Adequate creative problem-solving test results merely reinforce the need to shore the gap between school and work. High schools, for instance, rarely partner with local businesses—including laboratories, offices, and factories—to provide glimpses into work life. Internships only help students enrolled in higher education. We need alternatives.

Perhaps some good news is coming. President Obama has recently announced grants intended to update school curriculums to better integrate work experiences and real-life opportunities. It will finance partnerships with local education agencies and employers, which would enhance job shadowing and mentor opportunities. Six-year high school programs focused on career and technical education and partnered with corporations like IBM are giving many students alternatives to four-year colleges. Yet, they are at the experimental stage and not yet the norm.

Equally important, we need an education approach that syncs with the fluid way we live and work in the 21st century. This includes more inquiry, student-driven projects, and cross-disciplinary experiences apart of the current accountability and Common Core focus. They prepare our students more productively than a performance- and outcome-based approach ever will. China, ironically, has been trying to adopt a more western approach to educating its students, despite their high test scores. We would do well to remember that when considering policy implications to improve U.S. students' creative problem-solving abilities.

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