RESEARCH

PISA: Not Leaning Hard on U.S. Economy

BY GERALD W. BRACEY

The United States produces the lion's share of the world's best students." Well, of course, this statement didn't appear in any *American* publication. It appeared in *Nature,* the former English publication that now refers to itself as the "international weekly journal of science." The writers *are* Americans, Hal Salzman of Rutgers University and Lindsay Lowell of Georgetown University. They use data from the 2006 administration of the Program of International Student Assessment (PISA) to back it up.

I have long argued that using test scores to compare education systems is a mistake and that using average scores to compare countries is a worse mistake. Salzman and Lowell show why. Look not at the average score, but at the number of people who garner "level 6," the highest level on the PISA science test. The U.S. has about 67,000; Japan, in second place, about 34,000; the United Kingdom, in third place, about 23,000. Finland, the highest scoring nation, has the second-largest proportion of level-6 scorers at 3.9%, which gives them 2,500 actual people.

Six of the 30 OECD countries have percentages of high scorers that round down to zero. So do 16 of the 27 "partner" nations that also participated. Interestingly, one of the highest scoring nations, Korea, has a proportion of high-scorers that is smaller than the U.S., 1.1% vs. 1.5%.

"Policies designed to stockpile engineers and scientists are counter-productive," argue Salzman and Lowell. The "Sputnik Spike" was followed by a "spectacular bust that led to high unemployment in these fields," they write. There is currently evidence that the STEM market is already overloaded. Salzman and Lowell cite Michael Teitelbaum of the Alfred P. Sloan Foundation that "substantially more scientists and engineers graduate from U.S. universities than can find attractive career opportunities in the U.S. workforce." Teitelbaum explains that this makes our university system look more like a system to produce "a pool of low-cost research lab workers with limited career prospects than a high-quality training program for soon-to-be academic researchers."

Why do people make such simplistic comparisons? Salzman and Lowell explain, "The beauty of brandishing a simple number or a few facts is that they fit in a single headline and focus the reader's attention. However, before we send teams of educators to discover the educational secrets of [other countries] we should do more study into the nature and context of their education systems. . . . Sending children to classes six days a week, extra preparation courses nights and weekends, and having a single examination that decides their fate, as is done in Japan, is not a choice most U.S. parents would make.

"If, as we argue, average test scores are mostly irrelevant as a measure of economic potential, other indicators do matter. To produce leading-edge technology, one could argue that it is the number of high-performing students that is most important in the global economy," write Salzman and Lowell. The good news is that we have plenty of them. The bad news is that we have even more of the lowest-scoring students. Among OECD nations, only Mexico does worse; no one else comes close. This statement is true not only of science, which the 2006 PISA emphasized, but also for mathematics and reading, which were tested but not emphasized.

We have plenty of work to do, but we should look inward, not outward. Salzman and Lowell observe that PISA found that 90% of the variance in scores is *within* countries, not *between* countries.

8th-Grade Algebra

December's column gave an account of Tom Loveless' study on 8th graders who are enrolled in algebra and shouldn't be. The Think Tank Review Project (a series published by the EPIC/EPRU think tanks jointly headquartered at Arizona State University and the University of Colorado) has critiqued Loveless' work. The Think Tank Review Project's purpose is to provide *some* review of work from, say, Heritage, Hoover, Manhattan, etc., which never bother to obtain peer reviews before publication. I think the series is useful (full disclosure: I'm a nonresident fellow and have written many papers for the group) and I encourage readers to visit http://epicpolicy.org/think-tank-review-project and read the critique for themselves. But I have some reservations about the critique of Loveless' paper.

Carol Corbett Burris, a high school principal in a

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"diverse suburban school district," wrote one of the reviews. As a counter to Loveless, Burris cites a successful program for accelerating math achievement for kids in 6th through 8th grades. These students, even if they started as low performers, were more likely to take advanced courses later and to pass the state algebra test at 8th grade.

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One could debate whether Burris was the best choice of writer for a critique, because she is a principal in the district that operated the project and a senior author on an article documenting its success. But my concern here is whether her study bears on Loveless' study.

The project condensed the usual 6-8 curriculum to grades 6 and 7, leaving 8th grade available for algebra. Enacting a three-year program of acceleration directed by seasoned scholars is quite different from dumping low-achieving 8th graders into algebra by fiat or from good intentions. The program looks to have been well planned and thought out,

I don't think this study bears on Loveless' study. Recall that in Loveless' sample, the average NAEP score for the misplaced 8th graders was 211, compared to the national average score of *4th* graders of 238. Burris impugns the use of NAEP data to make inferences about algebra, but no matter what the relationship between NAEP and algebra, these kids have no business in algebra class. This does *not* mean that we should not strive to teach students well enough in grades 1-7 that they can, if they choose, take algebra and handle it. It does mean that we are a long, long way from that day (see the data above on PISA low scorers).

Second, 77% of the misplaced students in Loveless' study were black or Hispanic, and 70% qualified for free and reduced-price lunch. They were in large urban schools. By contrast, Burris' school is in Rockville Center, New York, a district that is 75% white and whose "families earn upper-middle-class incomes." Eight percent are black, 12% Hispanic, and 2% Asian. I guess the concept of diversity is elastic, but even before Burris's school enlarged its International Baccalaureate program, "over 90% of the students went to college."

The only achievement data on Burris' students were stanines from the ITBS. Students in stanines 2-4 were called low achievers (I presume there were no students in the first stanine); 5-7, average achievers; and 8-9, high achievers. At the start of 8th grade, the number of students in the three groups were 62 (about 6% of the total), 525, and 398, respectively. In a normal distribution, stanines 2-4 would contain 36% of the students. Students in the 7th stanine can have scores around the 90th percentile. Calling them "average" is probably not appropriate. Note, too, that even if all of the low achievers were black or Hispanic, most of the black and Hispanic students in the district were in the average or high-achieving groups. The kids in Rockville Center are not the kids in Loveless' study. Not by a long shot. We're comparing incomparables.

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