

美學生數學、科學成績大幅落後

Despite gains, U.S. students lag behind Asian peers

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「國際數學與科學教育成就趨勢調查」(TIMSS) 11 日公布的調查報告顯示，美國四年級學生在數學和閱讀的表現比四年前進步，但八年級學生則不如預期。不過，由於其他許多國家的進步幅度更大，凸顯美國已更為落後，特別是不如像南韓、新加坡等較富裕的亞洲國家。

這項四年一度的全球性調查顯示，雖然美國學生的程度保持在全世界前 12 名內，但美國八年級學生與其他成績頂尖國家的差距，卻愈來愈大，尤其是數學成績。

向來在各方面傲視全球的美國，如今在學生的成績表現已不再居於領先地位。美國四年級學生的數學和科學，不如新加坡和芬蘭。八年級學的數學遠遠落後台灣、日本和俄羅斯；科學則落後香港、南韓和斯洛維尼亞。

在TIMSS的成績排名中，新加坡、南韓、香港、台灣和日本等亞洲國家和地區，不論四年級和八年級均有頂尖表現。協助辦理這項測驗的「全國教育統計中心」(NCES)主任巴克雷(Jack Buckley)表示：「若檢視美國的八年級學生的程度，我們由長期來看，並沒有太大進步。」

聯邦教育部長唐侃表示，八年級學生數學和科學成績停滯不前，令人無法接受。他說：「如果我們未能及時扭轉，則成績優秀的國家在以知識為基礎的全球經濟上，很快會超越美國。」

不過，該研究發現，美國學生在所有科目的表現，仍超過全球平均，但美國最貧窮學校的學生程度則低於全球平均。而為提升美國學生的程度，歐巴馬總統在今年初的「國情咨文」中已宣示，將在未來十年將培養 10 萬名數學和科學教師。

資料來源：(1) 2012 年 12 月 12 日 世界日報 (The World Journal)
(2) 2012 年 12 月 11 日 Hechinger Report

Despite gains, U.S. students lag behind Asian peers

East Asian countries continued their dominance in international test results released Tuesday. The United States scored better than the majority of countries in all subjects, but failed to crack the top 10 in most subjects. Singapore was at or near the top of the pack in all the tests, while Finland slipped slightly from its performance on a different group of assessments given in 2010.

The Trends in International Mathematics and Science Study (TIMSS) and the Progress in International Reading Literacy Study (PIRLS) were given to hundreds of thousands of fourth and eighth graders to assess their math and science content knowledge and literacy skills. Fifty-two countries took part in at least one part of TIMSS, which is given every four years and 49 did so for PIRLS, which is given every five years.

The U.S ranked sixth in reading among fourth graders, a significant gain over 14th in 2006. Math scores were less impressive, with the U.S. only in the top 15 among fourth graders and among the top 24 in eighth grade. The U.S. made the top 10 in fourth-grade science, but was only among the top 23 in eighth grade.

U.S. Secretary of Education Arne Duncan described the results as “encouraging news about our students’ progress and some sobering cautionary notes.”

“Learning gains in fourth grade are not being sustained in eighth grade - where mathematics and science achievement failed to measurably improve,” he said in a statement. “A number of nations are out-educating us today in STEM disciplines - and if we as a

nation don' t turn around, those nations will soon be out-competing us in a knowledge-based, global economy."

Jim Hull, a senior policy analyst at the National School Boards Association' s Center for Public Education, was less alarmist. "We' ve still made some of the greater gains in the world since 1999," he said.

"It' s something to keep an eye on."

In math, Singapore, Korea, Hong Kong, Chinese Taipei and Japan were the top performers at both grade levels. In science, Singapore, Japan, Korea and Chinese Taipei again made the cut across the board, joined by Finland. Russia was also a top performer in fourth grade.

East Asian countries also continued to perform well in math. In fourth grade, for instance, 70 percent of students in the five top performing countries reached the high or advanced benchmark in math. The next best showing came from Northern Ireland with 59 percent of students. These gaps grew in the eighth grade, where the report concluded "clearly the East Asian countries ... are pulling away from the rest of the world by a considerable margin."

The overall U.S. figures tell only part of the story. Nine states included in the national score were also measured as independent education systems. In many cases, the states' results were not significantly different than that of the whole country, but a few were comparable with the high-ranking countries.

Massachusetts ranked second to Singapore in eighth-grade science and tied for fifth in math. Minnesota also ranked near the top in these subjects. And Florida placed fifth in fourth-grade reading.

“There is a great range in the performance of students in various states,” Hull said. “The U.S. can ... perform among the best countries in the world.”

When the data is desegregated by race, Asian-American students perform nearly as well as their counterparts in Asian countries, Hull said. But black students “perform similar to the lowest ranking countries in the world,” Hull said. “That’ s a huge, huge gap.”

Finland, which has received international attention and accolades for years as a top performer in the Programme for International Student Assessment (PISA), was edged out of many of the top spots on TIMSS. It still ranked third in fourth-grade science and reading, however, and was in the top 10 in all tests.

Martin said that the difference may be attributed to the form of the tests. While PISA has a more general approach, TIMSS measures student achievement against an agreed upon set of specific skills countries are trying to teach their students.

Gary Beach, author of the upcoming book *The U.S. Technology Skills Gap*, questioned whether such tests are still relevant. “From my conversations with business executives, they’ re not so much interested in hiring brainiacs,” he said, adding that they are more concerned with intangible skills like communication and collaboration. “The importance of testing that is more important than testing basic math and science.”