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Press Release

Trends in International Mathematics and Science Study (TIMSS) 2007

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(I) HONG KONG AND OTHER ASIAN STUDENTS CONTINUE TO BE IN THE TOP POSITIONS OF INTERNATIONAL MATHEMATICS AND SCIENCE ASSESSMENT

The Trends in International Mathematics and Science Study (TIMSS) 2007 press conference, scheduled today (10 Dec 2008) at LG01 Hui Oi Chow Science Building, HKU, informed the public about the achievement in and attitudes towards mathematics and science of Primary 4 and Secondary 2 students from Hong Kong and over 60 other countries/regions.

TIMSS 2007, being the fourth cycle of the international assessment, tested more than 424,000 students worldwide. The Hong Kong component of TIMSS 2007 involved 3,791 Primary 4 students and 3,470 Secondary 2 students from 126 primary and 123 secondary schools, respectively.

The Director of Hong Kong IEA Centre, Professor Frederick Leung, announced the findings of TIMSS 2007 at the press conference after the official international press release at Boston, United States, on December 9, 2008. Professor Leung said, "This is the fourth time Hong Kong participated in TIMSS since it first started in 1995. Hong Kong and many of the Asian regions, like previous waves of the study, have maintained their good performance in the international mathematics and science achievement".

In mathematics, Hong Kong and Singapore are the top-performing regions in the Primary 4 sample, ranking first and second, respectively. Their students' mathematics achievement is significantly higher than the rest of the participating countries/regions. Performance of Chinese Taipei and Japan immediately followed after Hong Kong and Singapore. At Secondary 2, Chinese Taipei, Korea, Singapore, Hong Kong and Japan have taken up the first five positions of the international mathematics ranking. Students in these regions outperformed their counterparts in other participating countries/regions.

A similar pattern has been found in the field of science. Primary 4 students in Singapore, Chinese Taipei, Hong Kong and Japan also performed very well in the science section of the 2007 study. These countries/regions are at the top positions, with Singapore having significantly higher science achievement than other countries in the sample. At Secondary 2, Singapore and Chinese Taipei have significantly higher science achievement than the rest of the countries/regions. Hong Kong students' performance is only significantly lower than students in Singapore, Chinese Taipei, Japan and Korea.

TIMSS not only informs about the prevailing standings of different countries' mathematics and science achievement, but also the changes in achievement across time.

(II) Other Key Findings for Hong Kong:

1. *Trends in Achievement*

In the past 12 years, Hong Kong is the only participating Asian region in the Primary 4 sample which has shown a significant increase in mathematics achievement across all waves of TIMSS. Other countries with a similar trend are England, United States, Australia, Slovenia and Iran. At Secondary 2, Hong Kong had a significantly higher mathematics achievement in 2003, but significant difference in achievement in other cycles (2007, 1999 and 1995) has not been identified.

For science at Primary 4, Hong Kong has a significant increase over a 12-year period. Singapore, Latvia, Slovenia and Iran also show this pattern in their primary 4 science achievement. At Secondary 2, Hong Kong, like its Asian counterparts Chinese Taipei and Korea, had better science achievement in 2003 but its performance in the latest study is better than 1995 but not different from 1999.

2. *International “Advanced” Benchmarks*

Hong Kong and Singapore have two-fifths or more of their Primary 4 students reaching the “advanced” benchmark of mathematics identified by TIMSS, followed by about a quarter of the students in Chinese Taipei and Japan reaching that benchmark. Hong Kong is the only region among all participating countries/regions with all students passing the lowest benchmark. At Secondary 2, about one-third of Hong Kong students have reached the “advanced” benchmark, while Chinese Taipei, Korea and Singapore have two-fifths or more of their students reaching that benchmark.

For science, at Primary 4, 14 percent of Hong Kong students have reached the “advanced” benchmark. In comparison, Singapore and Chinese Taipei have 36 percent and 19 percent of their students reaching this “advanced” level respectively. At Secondary 2, 10 percent of Hong Kong students have achieved the “advanced” benchmark. Japan and Korea each has 17 percent of students reaching this level, while Singapore and Chinese Taipei have one-third and a quarter of their students achieving this benchmark, respectively.

3. *Gender and Achievement*

In the current study, significant difference in mathematics and science achievement between boys and girls has not been identified in both grades in Hong Kong. The insignificant results on gender difference for mathematics achievement are very consistent with the previous findings for Hong Kong. Whereas for science, the Hong Kong figures for TIMSS 1995 and TIMSS 2003 showed that boys performed better than girls but this pattern no longer exists. Like more than half of the participating countries/regions, the effect of gender difference on Hong Kong students' mathematics and science achievement seems to be diminishing.

4. *Attitudinal Results*

It is interesting to note that although Hong Kong and many other Asian students do very well in their mathematics and science achievement, they are less likely to enjoy and to have high values and high self-confidence in learning mathematics and science when compared to students in other parts of the world, especially students in Africa and the Middle East. Hong Kong students, as well as students in Japan, Chinese Taipei and Korea, are generally lower than the international averages on their high values, high positive affect and high self-confidence in learning mathematics and science.

[A summary of findings is attached to this press release]

TIMSS 2007 Participants

The Trends in International Mathematics and Science Study (TIMSS) 2007 is conducted under the auspices of the International Association for the Evaluation of Educational Achievement (IEA). The participating countries/regions include Algeria, Armenia, Australia, Austria, Bahrain, Bosnia and Herzegovina, Botswana, Bulgaria, Canada (Alberta, British Columbia, Ontario and Québec), Chinese Taipei, Colombia, Cyprus, Czech Republic, Denmark, Dubai, Egypt, El Salvador, England, Georgia, Germany, Ghana, Hong Kong SAR, Hungary, Indonesia, Iran, Israel, Italy, Japan, Jordan, Kazakhstan, Korea, Kuwait, Latvia, Lebanon, Lithuania, Malaysia, Malta, Mongolia, Morocco, The Netherlands, New Zealand, Norway, Oman, Palestinian National Authority, Qatar, Romania, Russian Federation, Saudi Arabia, Scotland, Serbia, Singapore, Slovak Republic, Slovenia, Spain (Basque Country), Sweden, Syria, Thailand, Tunisia, Turkey, Ukraine, United States, Yemen.

Media Note:

The international reports of TIMSS 2007 can be downloaded at <http://timss.bc.edu>.

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