

An Ideal Opportunity— Assessing TIMSS and PIRLS Together at the Fourth Grade

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In 2011, for the first time the TIMSS and PIRLS data collection schedules came into alignment. Forty countries, as well as 6 regional entities (states or provinces), took the opportunity to assess their fourth grade students in three fundamental curricular areas—mathematics, science, and reading. Beyond the benefits of obtaining internationally comparative achievement data in these three core subjects, the coming together of the two projects has provided a unique occasion to study relationships in educational achievement.

By simultaneously assessing the **same** students in all three curricular areas, countries will be able to compare the relative effectiveness of schooling across the three subjects, controlling for extraneous factors. Equally important, as PIRLS has a parent questionnaire that provides information describing students' home environments and supports for learning, this information also will also be available for analyses with TIMSS data.

Taking advantage of this exceptional opportunity, the majority of the TIMSS and PIRLS 2011 participants—34 of the 40 countries and 3 of the 6 regional entities—assessed their same fourth grade students in reading, mathematics, and science.

In response, the TIMSS & PIRLS International Study Center will produce a special report using statistical modeling techniques to address several questions about the relationships in achievement, such as:

- ◆ Are primary schools providing students with a solid foundation in core subjects? What are the patterns of high achievement? Do the same students have high achievement in all three subject areas? What factors are associated with being a high achiever in all three subjects?
- ◆ How do homes support high literacy and numeracy achievement? What are the relationships among home resources, engaging in early literacy

and numeracy activities, and children's skills when entering school? Do these differ by gender?

- ◆ Are schools relatively more effective in some subjects than others? If the same students in the same schools are reaching relatively higher achievement in some subjects than others, how is this related to school policies and classroom instruction?

What is the impact of reading ability on mathematics and science achievement? How does the relationship differ by different mathematics and science tasks? Is this different for girls than for boys? The intention of this initial TIMSS and PIRLS report, tentatively titled *TIMSS and PIRLS 2011 Relationships among Reading, Mathematics, and Science Achievement—Implications for Early Learning*, is to take some first steps in the analysis process. It is anticipated that the primary value of the data will be realized through in-depth national research, as participating countries use the data for school improvement at the primary level. Also, a well-documented database will be available for researchers around the world to capitalize on the analysis potential of these data and contribute to an increased understanding of the educational process..

About TIMSS and PIRLS

For the past 20 years, TIMSS (Trends in International Mathematics and Science Study) has measured trends in mathematics and science achievement at the fourth and eighth grades. It has been conducted on a regular 4-year cycle since 1995, making TIMSS 2011 the fifth assessment of mathematics and science achievement trends. TIMSS Advanced, which measures trends in advanced mathematics and physics for students in their final year of secondary school, was conducted in 1995 and 2008, and is scheduled for 2015 (with the sixth assessment of TIMSS). For the past 15 years PIRLS (Progress in International Reading Literacy Study) has measured trends in reading comprehension at the fourth grade. First assessed in 2001, PIRLS has been on a regular 5-year cycle since then. Most recently, PIRLS was expanded in 2011 to include prePIRLS, which is a less difficult version of PIRLS. Both TIMSS and PIRLS were assessed in 2011, when the cycles of both studies came into alignment.

In general, participating countries use TIMSS and PIRLS in various ways to explore educational issues, including: monitoring system-level achievement trends in a global context, establishing achievement goals and standards for educational improvement, stimulating curriculum reform, improving teaching and learning through research and analysis of the data, conducting related

studies (e.g. monitoring equity or assessing students in additional grades), and training researchers and teachers in assessment and evaluation.

TIMSS and PIRLS results are disseminated through reports and via the web through a well-documented international database for within and across country research.