

# ISI Classroom Results

I-STEM, IUPUI and TERC (Cambridge, MA) studied the impact of the Indiana Science Initiative (ISI) curriculum on students' ISTEP+ passing rates for 329 schools (including 107 ISI schools)<sup>1</sup>. The analysis compared ISI students to matched cohorts of non-ISI classrooms. Students were matched on grade level, gender, ethnicity, Free or Reduced Lunch status, high ability, special education, and English language learner status. Classrooms were matched based on grade levels and teachers' years of experience. The study also evaluated the impact of ISI's professional development (PD) on student ISTEP+ passing rates. Teachers with two or less hours of PD were labeled "ISI-No PD", while teachers with 14 or more hours of PD were labeled "ISI with PD".

ISTEP+ science passing rates (for Pass and Pass+ scores) in grades 4 and 6 in ISI classrooms showed an 11% higher passing rate than those in non-ISI classrooms (see Figure 1). These results are for ISI classrooms with 14 hours or more of teacher professional development and are significant at the  $p < 0.001$  level. When translated to numbers of students for the 107 ISI schools in this study, **about 900 more students passed ISTEP+ science** because of ISI.

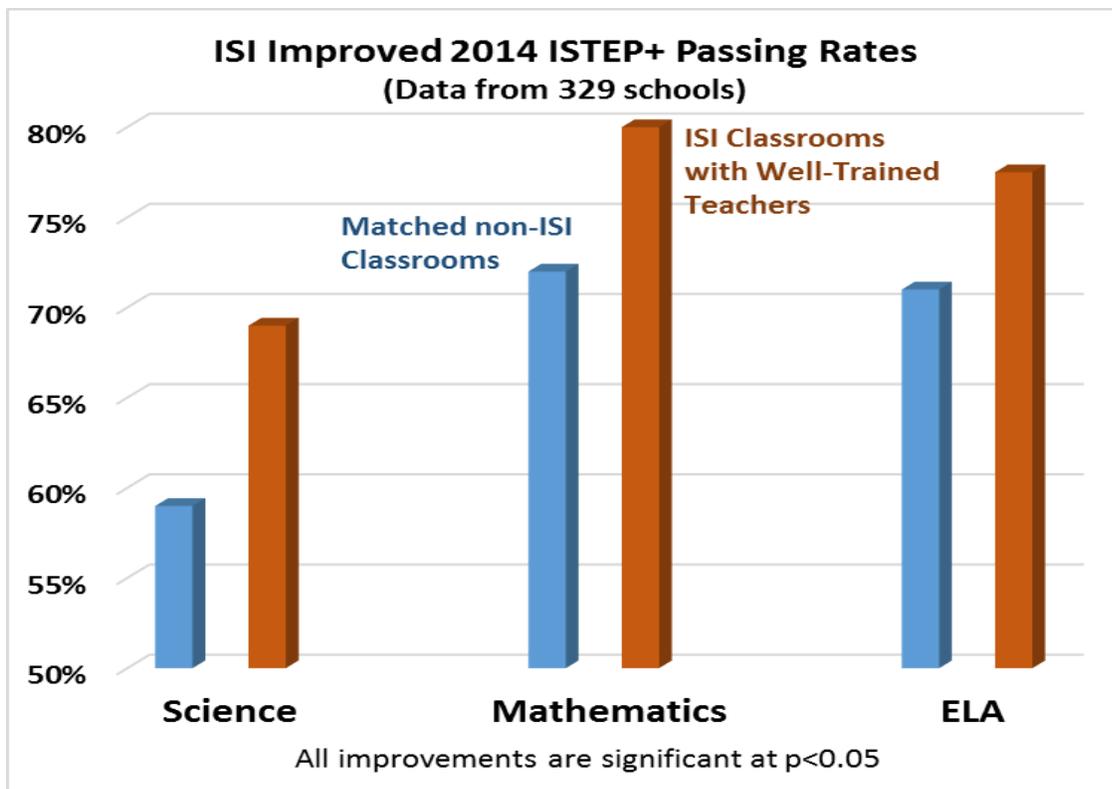


Figure 1. ISTEP+ Science, Mathematics and English Language Arts Passing Rates in ISI Classrooms Compared to Matched Non-ISI Classrooms

<sup>1</sup> The complete report: "The Impact of the Indiana Science Initiative on Students' Science, Mathematics and English Language Arts Knowledge Evaluations" (I-STEM Report 2015-03) is available at [www.istemnetwork.org/about-us/stem-reports/](http://www.istemnetwork.org/about-us/stem-reports/).

Similarly, ISTEP+ mathematics passing rates in ISI classrooms with well-trained teachers were 8% higher for students in grades 3-8 compared to matched non-ISI classrooms. ISTEP+ ELA passing rates in ISI classrooms with well-trained teachers demonstrated 7% higher passing rates for grades 3-8 compared to matched non-ISI classrooms.

To further investigate the impact of the amount of ISI PD on student science performance, ISI teachers were clustered by the amount of professional development (PD) they received.

Categories were determined in consultation with I-STEM researchers, and they are listed below:

- Very low = 1-13 hours
- Low = 14-20 hours
- Moderate = 21-27 hours
- High = 28-41 hours
- Very high = 42+ hours

As shown in Figure 2, students whose teachers received 42 or more hours of professional development (in teaching science) score significantly higher by an average of 10 points on ISTEP+ science tests ( $p < 0.01$ ).

### ISTEP+ 2014 Science Scores for Five Levels of PD for ISI Teachers

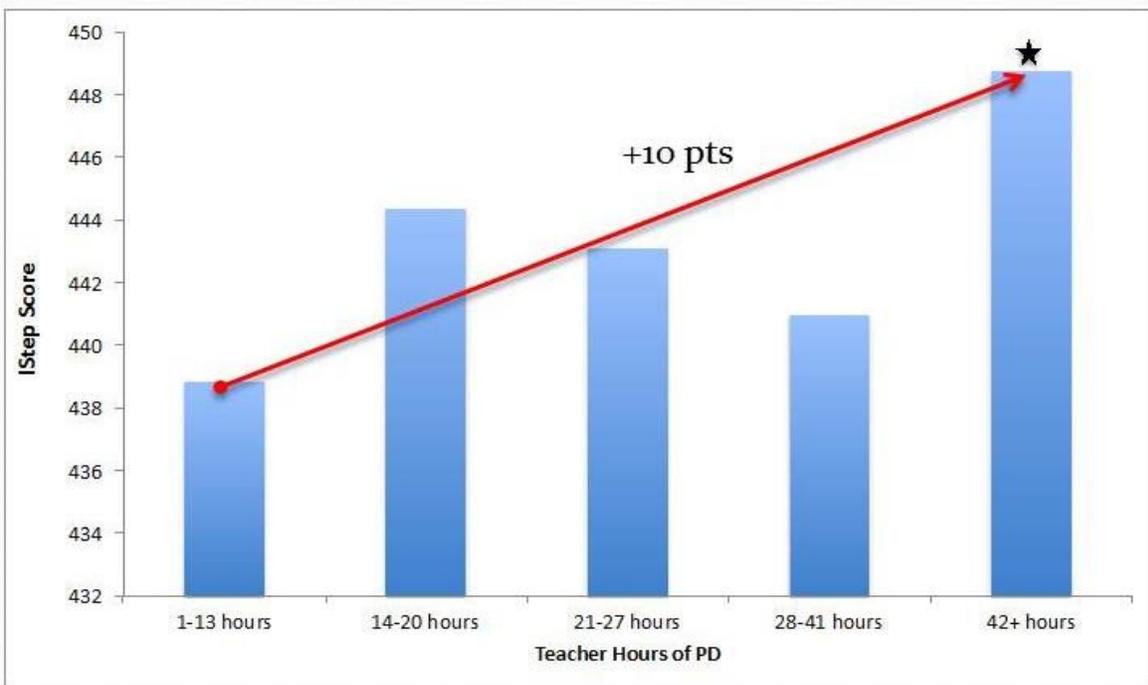


Figure 2. ISTEP+ Science Scores for Students for Five Levels of Teacher Professional Development

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