

DATA POINT

U.S. DEPARTMENT OF EDUCATION

NCES 2016164

JULY 2016

Student Self-Assessment of Math and Science Ability in High School

The High School Longitudinal Survey (HSLs:09) is a nationally-representative, longitudinal study of over 23,000 9th graders from 944 schools in 2009. This study follows students throughout secondary and postsecondary years collecting data on student trajectories, major fields of study, career paths, and STEM interest. The study's Base Year was 2009 and the First Follow-up was conducted in 2012, when most of the cohort were 11th graders. The study included student self-assessment of confidence in math and science and information indicating self and others' assessment of math abilities.

How did student confidence in ability to do math and science assignments change during high school?

Students were asked how confident they felt that they could “do an excellent job on assignments” in their math and science courses in 2009 and again in 2012.¹ Results will be presented by sex.

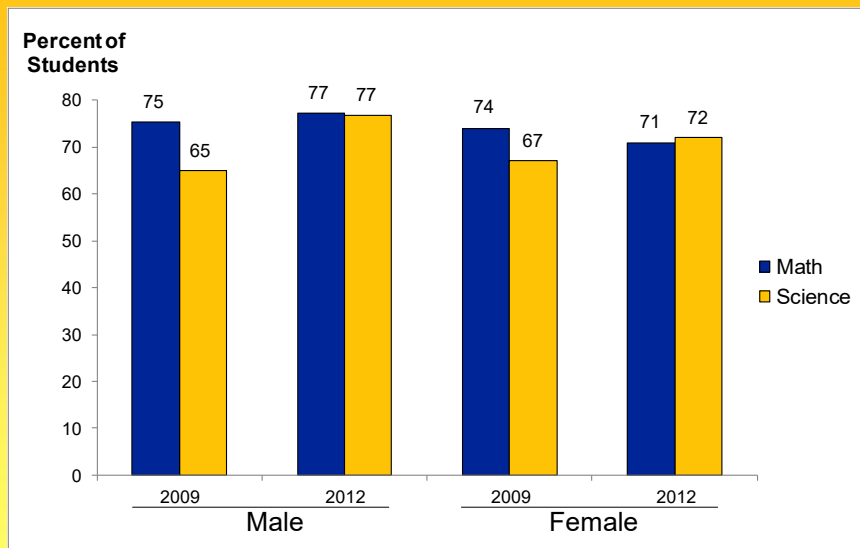
- The percentage of male students who were confident they could “do an excellent job on assignments” in math was 75.3 percent in 2009 and 77.3 percent in 2012 (not statistically different once sampling error is accounted for). The percentage of students who were confident in their abilities on science

assignments increased from 65.1 percent in 2009 to 76.9 percent in 2012. **(Figure 1).**

- While the percentage of female students who were confident they could “do an excellent job on assignments” in math decreased from 73.9 percent in 2009 to 71.0 percent in 2012, the percentage of those who were confident that they could do an excellent job on science assignments increased from 67.1 percent in 2009 to 72.0 percent in 2012 **(Figure 1).**

- The increase in percentage of those confident they could do an excellent job on science assignments was larger for males than females, and a higher percentage of males than females were confident in their abilities in 2012. **(Figure 1).**

FIGURE 1. Percentage of students who are confident in their ability to do an excellent job on math and science assignments, by sex: 2009 and 2012



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. *High School Longitudinal Study of 2009 (HSLs:09) First Follow-up Public-Use Data File* (NCES 2014-358).

Data in this report are from the HSLs: 2009, a nationally representative sample survey. To learn more, visit <http://nces.ed.gov/surveys/hsls09/>. For questions about content or to view this report online, go to <http://nces.ed.gov/pubsearch/pubsinfo.asp?pubid=2016164>.

How did students' self-assessments of their own math abilities and perceptions of how others assessed their math abilities change during high school?

Students were asked if they considered themselves a “math person” when they started 9th grade in 2009 and again at the end of the 2011-12 school year. Students were also asked if they thought others considered them a “math person.”²

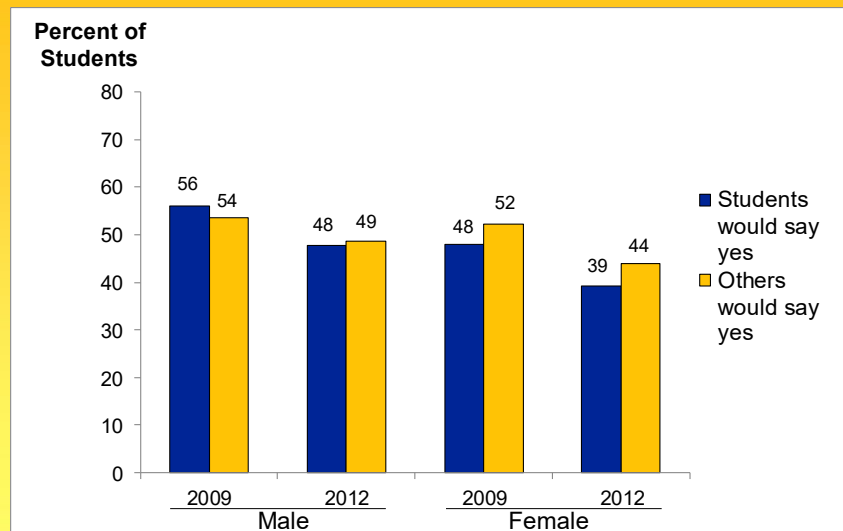
- The percentage of male students who considered themselves to be a “math person” decreased from 56.1 percent in 2009 to 47.8 percent in 2012 (**Figure 2**).
- The percentage of male students who thought others considered them to be a “math person” also decreased (53.5 percent in 2009 to 48.8 percent in 2012) (**Figure 2**).

Endnotes

¹ Information on male students' math confidence was derived by combining percentages of male students who answered “strongly agree” and those who answered “agree” that they were “confident they could perform with excellence on a math assignment.” The same process was used to derive male student confidence in science, and for female students' confidence in their math and science abilities.

² Information on the percentage of students who see themselves as or think others see them as a “math person” was derived by combining percentages of students who answered “strongly agree” and who answered “agree” that they were a “math person.” The same process was used to derive “others would say yes.”

FIGURE 2. Percentage of students who see themselves as or think others see them as a “math person,” by sex: 2009 and 2012



SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics. *High School Longitudinal Study of 2009 (HLS:09) First Follow-up Public-Use Data File* (NCES 2014-358).

- The percentage of female students who considered themselves to be a “math person” decreased from 48.1 percent in 2009 to 39.3 percent in 2012 (**Figure 2**).
- The percentage of female students who thought others considered them to be a “math person,” decreased from 52.2 percent in 2009 to 44.0 percent in 2012 (**Figure 2**).

This NCES Data Point presents information of education topics of current interest. It was authored by Rachel Hanebutt and Elise Christopher of NCES. Estimates based on samples are subject to sampling variability, and apparent differences may not be statistically significant. All stated differences are

statistically significant at the .05 level. In the design, conduct, and data processing of National Center for Education Statistics (NCES) surveys, efforts are made to minimize effects of non-sampling errors, such as item response, measurement error, data processing error, or other systematic error.