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## Do both boys and girls feel safe at school – and does it matter?

Academic achievement and feelings of safety: a closer look at gender and grade level differences

### SUMMARY

- In TIMSS 2015, while two-thirds of students in grade four reported feeling very safe at school, by grade eight, less than half the students surveyed reported feeling a high level of safety.
- For both boys and girls, feeling safe in school seemed to be positively related to academic achievement in many countries.
- The relationship between feeling safe at school and academic achievement was stronger for grade eight students than grade four students, and also stronger for girls than boys.
- Overall, girls were more likely to report feeling safe than boys.

### IMPLICATIONS

- The relationship between feeling safe in school and academic achievement differs between boys and girls, and also varies between countries. Educational policymakers are advised to carefully analyze the complex interplay between gender, grade level and national contexts when developing strategies to enhance school safety.
- TIMSS trends show perceptions about school safety play a critical role in supporting student academic achievement across many countries. In-depth national analyses of the TIMSS data may identify potential interventions and policies that foster safe and secure learning environments for all students, regardless of gender.

International Association for the Evaluation of Educational Achievement (IEA), Amsterdam. Website: [www.iea.nl](http://www.iea.nl)

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## INTRODUCTION

The importance of students feeling safe in schools has long been recognized. In recent years, school safety concerns have gained additional attention and begun to feel increasingly urgent. Clearly, the components of school safety vary not only between countries but also within countries. Student perceptions of safety at school may vary by gender, or across different groups of students (such as immigrant versus non-immigrant students), or by school setting (urban or rural) (see Katschnig & Hastedt, 2017). Yet while school shootings and large-scale violent acts are, rightly, high-profile reminders of the seriousness of school safety, day-to-day interactions and the emerging relevance of cyberbullying are also crucial elements of school climate that significantly influence students' feelings of safety in school yet often go unmentioned in discussions of school safety.

The International Association for the Evaluation of Educational Achievement's (IEA) flagship Trends in Mathematics and Science Study (TIMSS) is a valuable resource for gaining a better understanding of school safety in general, as well as the relationship between school safety and academic achievement in particular, both within and between countries. Because TIMSS data include information about student gender, mathematics and science achievement, and student perceptions about safety in school, the data collected can be used to explore the relationship between how safe boys and girls feel in school and their academic achievement. Research suggests that, TIMSS may be picking up on a wider range of bullying behaviors than other large-scale surveys (Smith & Lopez-Castro, 2016). Previous IEA briefs have discussed bullying in schools (Rutkowski & Rutkowski, 2018) and school safety for immigrant students (Chavatzia, Engel, & Hastedt, 2016). Here we analyze data from TIMSS 2015 to examine whether boys and girls have different perceptions of school safety.

## HOW TIMSS ASSESSES SAFETY IN SCHOOLS

At both grade four and grade eight, the TIMSS student questionnaires include a question asking students how much they agree with the statement "I feel safe when I am at school," with response options: "agree a lot", "agree a little", "disagree a little", and "disagree a lot" (the questionnaires can be retrieved from <https://timssandpirls.bc.edu/timss2015/questionnaires>). The TIMSS 2015 data (freely available from [www.iea.nl/data](http://www.iea.nl/data)) allow researchers to connect student responses to this question with achievement to examine the relationships among student perceptions of school safety and achievement in both mathematics and science. For the analyses presented in this brief, the achievement of students who "agreed a lot" with the statement about school safety was contrasted with that of all other students. This grouping created meaningful group sizes and allowed us to determine whether there were identifiable differences between the students who felt very safe and those who felt less safe.

## GENDER DIFFERENCES IN FEELINGS OF SCHOOL SAFETY

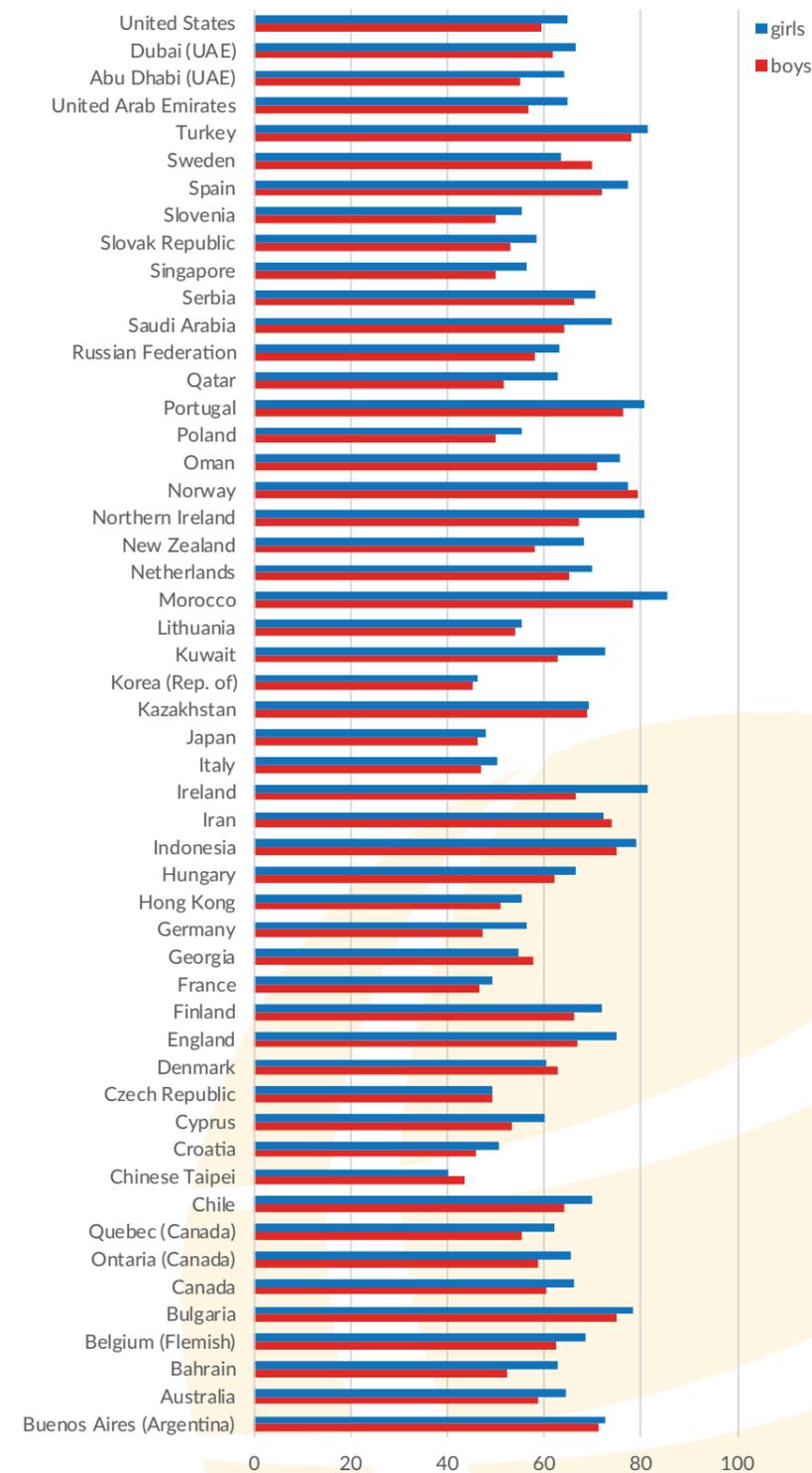
Analyzing the relationship between feelings of safety, student achievement, and gender yields results that are both encouraging and concerning. The first encouraging result is that the majority of students in grade four agreed a lot that they felt safe in school. In fact, more than 60% of grade four boys and more than 65% of grade four girls agreed a lot that they felt safe in school. While, among grade eight students, only approximately 46% of boys and 49% of girls agreed a lot that they felt safe in school, it is nonetheless positive that nearly half of the grade eight students still agreed a lot that they felt safe in school.

Interestingly, across national contexts and across grade levels, more girls than boys agreed a lot that they felt safe at school (Figure 1). In fact, in grade four, in 35 out of 52 education systems<sup>1</sup>, girls were more likely to agree that they felt safe in school than were boys. Sweden was the only country where more grade four boys than girls agreed a lot with the statement in the student questionnaire. In grade four, we found that the largest disparities by gender were in Ireland (81% of girls versus 66% of boys), Northern Ireland (81% of girls versus 67% of boys), Qatar and Bahrain (who both reported 63% of girls versus 52% of boys), and New Zealand (68% of girls versus 58% of boys).



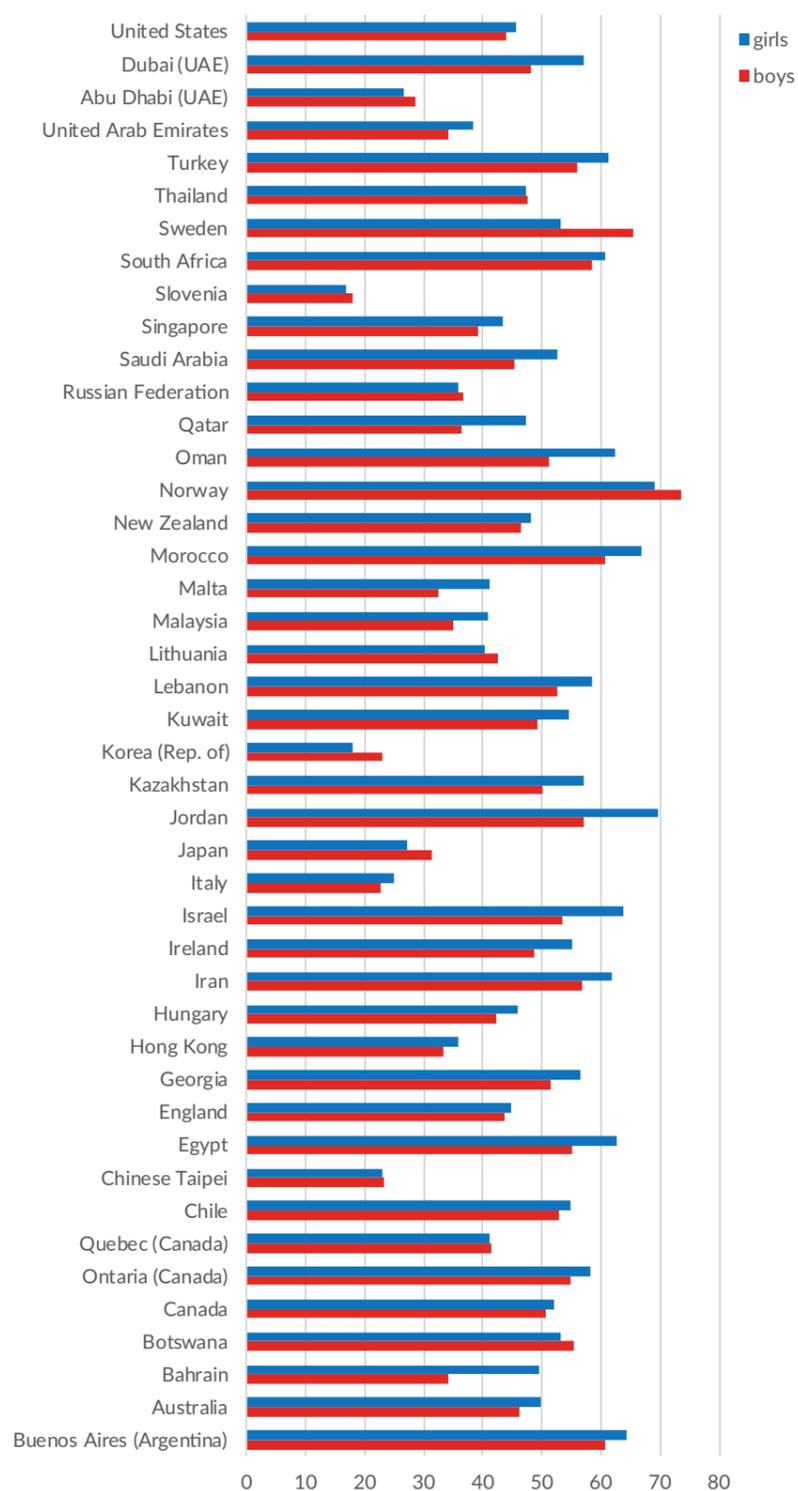
<sup>1</sup> The term "education systems" includes both national education systems within countries and any benchmark participants that were sub-entities of countries that participated in TIMSS 2015. The latter group includes, for example, Dubai, or the Canadian provinces of Quebec and Ontario.

Figure 1: Percentage of grade four students who agreed a lot with the statement: "I feel safe when I am at school"



For grade eight, four countries had a statistically significant higher number of boys agreeing a lot that they felt safe at school: these were Japan, Korea, Norway, and Sweden. In contrast, 18 countries had a statistically significant higher number of grade eight girls reporting that they felt safe in school (Figure 2). The largest disparities by gender were noted in Bahrain (50% of girls versus 34% of boys), Jordan (70% of girls versus 57% of boys), Oman (62% of girls versus 51% of boys), Qatar (47% of girls versus 37% of boys), and Israel (64% of girls versus 53% of boys).

Figure 2: Percentage of grade eight students who agreed a lot with the statement: "I feel safe when I am at school"



### PERCEPTIONS OF SAFETY AND STUDENT ACHIEVEMENT IN MATHEMATICS AND SCIENCE

Previous studies about school safety and bullying in schools found a clear association between school safety and student achievement (Bowen & Bowen, 1999; Chavatzia et al., 2016; Chen, Rubin, & Li, 1997; Hastedt, 2014; Perše, Kozina, & Leban, 2008; Rutkowski & Rutkowski, 2018; Shumov & Lomax, 2001). By providing data about how student perceptions of school safety relate to achievement differences within and across countries and genders, TIMSS 2015 further adds to understanding of this relationship.

When we analyzed data from TIMSS 2015, we found that, among grade four students, boys who agreed a lot that they felt safe at school achieved, on average, 4.1 points higher in mathematics and 2.9 points higher in science than their peers who felt less safe in school (scale with a mean of 500 and standard deviation of 100). (Figures 3 & 4). For grade four girls, these differences were 4.9 points in math and 3.1 points in science. In 13 out of 52 countries, the mathematics achievement of boys who agreed a lot that they felt safe in school was higher than that of their peers; the same was true of girls. In 11 countries, the science achievement of boys who felt very safe in school was significantly better than that of their peers; this was also the case for girls in eight countries. In grade four in science, the largest achievement differences were found in Morocco, where boys who agreed a lot that they felt safe at school outperformed their male peers by 25 points, and girls who agreed a lot that they felt safe at school outperformed their female peers by 27 points. For grade four mathematics, we observed differences as large as 26 points for Norwegian girls, and 23 points for Danish boys.

Figure 3: Differences in grade four mathematics achievement between students who feel very safe at school and those who feel less safe

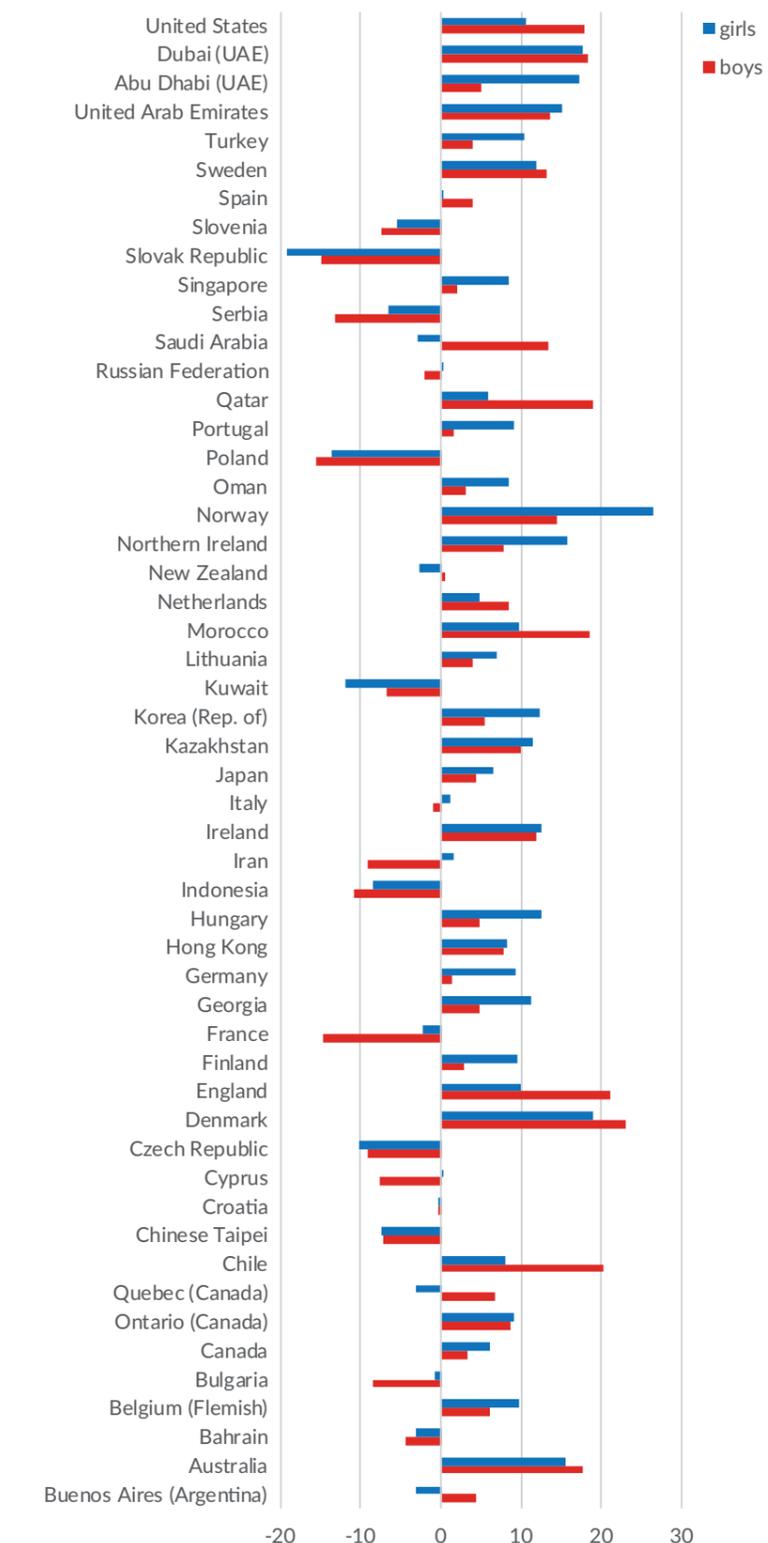
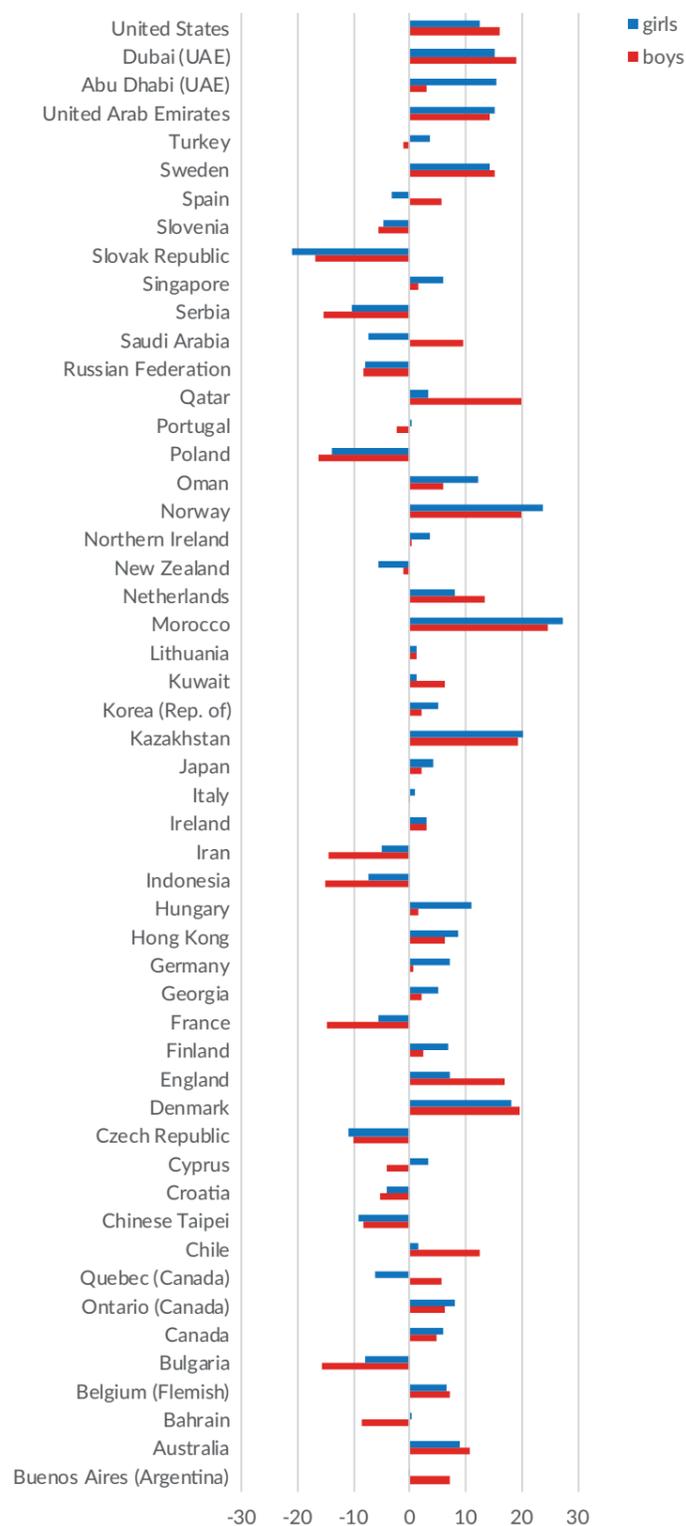


Figure 4: Differences in grade four science achievement between students who feel very safe at school and those who feel less safe



At grade eight, differences in achievement between those who felt very safe and those who felt less safe in school were even larger and, interestingly, the disparity was greater for girls than for boys (Figures 5 & 6). As an international average, grade eight boys who agreed a lot that they felt safe at school outperformed their peers in mathematics and science by 11 points, while girls who agreed a lot that they felt safe at school outperformed their peers by 14 points. In both science and mathematics, the differences for boys were statistically significant in 19 out of 44 countries. For girls, the differences were statistically significant in 27 out of 44 countries for science and in 23 out of 44 for mathematics.

Figure 5: Differences in grade eight mathematics achievement between students who feel very safe at school and those who feel less safe

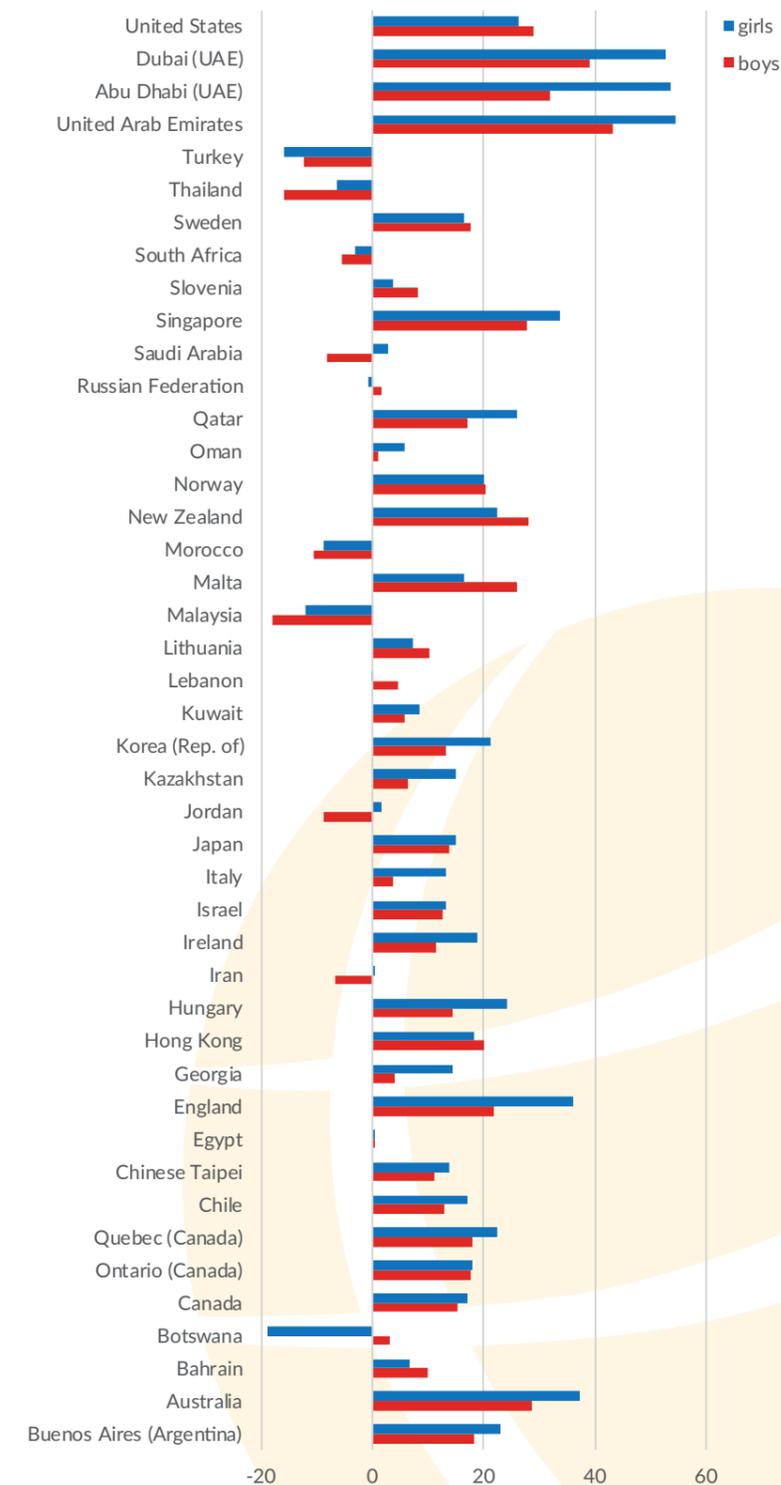
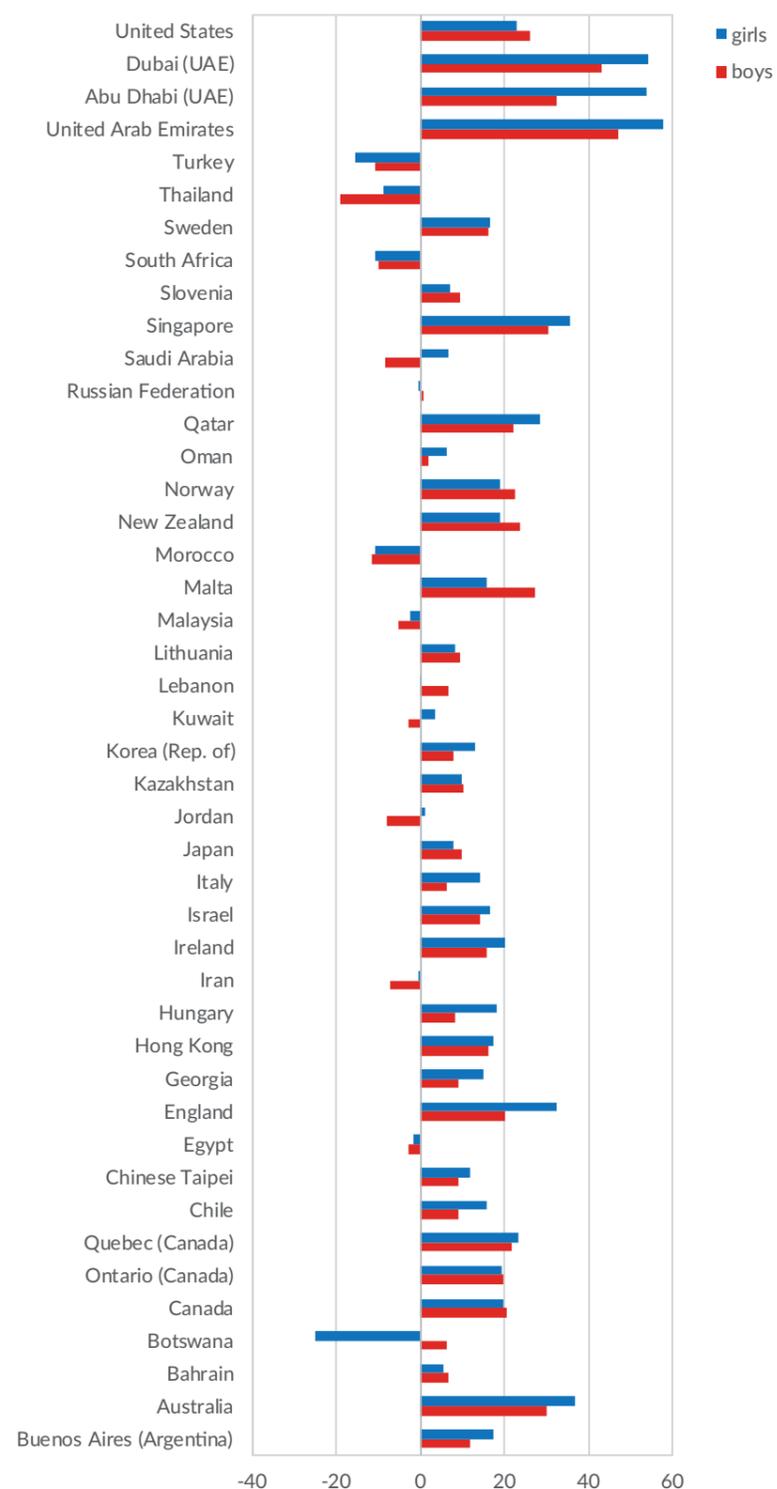


Figure 6: Differences in grade eight science achievement between students who feel very safe at school and those who feel less safe



## DISCUSSION

Internationally, across gender, students in grade eight are less likely to feel safe than students in grade four. At both grades, on average, girls tended to feel safer than boys. As both boys and girls progress through school, the academic achievement gap between those who feel very safe in school and those who don't feel very safe in school tends to increase. In most countries, feeling safe in school appears to have a stronger relationship with academic achievement for girls than it does for boys, and this increases as girls progress from grade four to grade eight.

From this relatively simple analysis, TIMSS shows that, across national contexts, feeling safe in school seems to be an important factor for academic achievement regardless of gender. It is equally important to recognize that the specific nature of the relationship between feeling safe in school and academic achievement differs between boys and girls, and between countries. While boys feel less safe overall, the academic achievement of girls is more strongly related to their perceptions of safety.

Our analysis of the relationship between student feelings of safety and academic achievement provides further evidence that policies that enhance school safety for both boys and girls

must be developed and implemented. Countries across the world face challenges related to school safety, and the findings here indicate that educational policymakers at the system level should take care to address the issue of school safety by carefully examining their own national contexts and by using tools that are proven to work best in a given setting and grade.

TIMSS findings are one piece of evidence in the international body of literature on school safety, and further research, especially at the school-level or system-level, is needed to identify potential interventions and policies that foster safe, secure learning environments for all students, regardless of gender. Nevertheless, because TIMSS includes many countries and representative samples, the data demonstrate that school safety is an important element of student academic achievement across a wide range of heterogeneous countries, regardless of geography, dominant race/ethnicity, language, culture, and economic development. Because TIMSS assesses grade four and eight students every four years, policymakers can use the TIMSS data to monitor trends related to school safety over time, as well as within and between countries.

## CONCLUSIONS

TIMSS provides an important source of data for policymakers. Among other benefits, TIMSS can help policymakers monitor changes in student perceptions of school safety and identify education systems where promising practices may have increased student feelings of safety in school. The TIMSS results demonstrate that safety is a critical element of schooling that plays an important role in student learning and achievement. As this brief has shown, subjective feelings of school safety differ between countries, between boys and girls, and between grade four and grade eight students.

Two findings of particular note are:

1. TIMSS shows that the number of students who feel safe at school decreases as students age; and
2. TIMSS indicates that, although boys are less likely to feel safe in school, the relationship between feeling safe and academic achievement is stronger for girls than for boys, and strongest for girls in grade eight.

These findings suggest that scholars and policymakers in many countries should work together on issues of school safety. The large disparities in perceptions of school safety by gender seen in some education systems may warrant particular attention.

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The International Association for the Evaluation of Educational Achievement, known as IEA, is an independent, international consortium of national research institutions and governmental agencies, with headquarters in Amsterdam. Its primary purpose is to conduct large-scale comparative studies of educational achievement with the aim of gaining more in-depth understanding of the effects of policies and practices within and across systems of education.

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