

## Summary

Great advances have been made in gender equality in education. In all OECD countries, younger women today are far more likely to have an upper secondary or tertiary qualification than women a generation ago. University-level graduation rates for women now equal or exceed those for men in two-thirds of the OECD countries. However, women remain persistently under-represented in areas such as mathematics and science. This chapter suggests that action in this area needs to be targeted at youth and, indeed, children.

While gender differences in student *performance* tend to be modest, there are marked differences between males and females in their *interest in* and *enjoyment of* mathematics, as well as in their self-related beliefs, emotions and learning strategies related to mathematics. Fifteen-year-old girls tend to report less confidence in their mathematical ability, and greater feelings of anxiety, helplessness and stress in mathematics classes than boys.

Learning depends on motivation and confidence as well as cognitive skills. So education systems that have raised the performance of girls in mathematics and science also need to foster strong stronger interest by girls in these subjects. There are good grounds for this: high-quality learning is time- and effort-intensive. It involves control of the learning process as well as the explicit checking of relations between previously acquired knowledge and new information, the formulation of hypotheses about possible connections and the testing of these hypotheses against the background of the new material. Learners will only put in the effort if they have a strong interest in a subject or if there is an external reward for performing well. Thus, students need to be willing to learn how to learn. From the perspective of teaching, this implies that effective ways of learning – including goal setting, strategy selection and the control and evaluation of the learning process – can and should be fostered by the educational setting and by teachers, for males and females alike. Motivation and self-confidence are therefore indispensable to outcomes that will foster lifelong learning.

Overall, the results suggest that education systems need to address aspects of attitudes and learning behaviours in relation to mathematics, particularly for females, and to consider this as a goal that is as central to the mission of education systems as cognitive instruction. This has implications for both the initial training and the professional development of teachers.