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Girls and Maths

IN Australia and elsewhere, we have seen a concentration of research efforts and policy interventions designed to promote the participation of girls in mathematics over the past 25 years.

Why then does a gender imbalance remain – and does it matter? Despite equivalent levels of mathematical achievement, girls are choosing lower levels of maths in senior high, and aspiring to less maths-related careers than boys. This persistent pattern has been repeatedly identified and is currently of concern in Australia and many other settings. Two perspectives inform this concern.

From a gender equity position, girls do not share equally in the advantages of the mathematically well-prepared; while from an economic standpoint women are an under-utilised pool that could supplement the critical shortage of people electing ‘STEM’ careers, i.e. in science, technology, engineering, and mathematics.

Part of the explanation lies in the fact that girls’ have less confidence in their mathematical abilities than boys – despite no gender differences in measured achievement. Does this mean that girls are under-estimating their mathematical abilities? In fact, there is a stronger relationship between girls’ mathematical ability beliefs and achievement than for boys, suggesting that girls may actually be more realistic about their abilities, and that boys may be over-estimating their abilities. This is not a bad thing for boys, because higher confidence translates into a spiral of benefits, including advanced mathematical preparation. Another part of the puzzle is that girls are less interested and have less liking for maths than boys, which has strong flow-on effects to their level of maths participation in high school, and maths-related career choices.

This provides a particularly effective lever for change. Because we know that girls are more likely to be engaged by activities that they see as socially meaningful and important, it is essential that educators make explicit connections between mathematics and its social uses and purposes. Adolescents also often have quite inaccurate ideas of what careers involve developed mathematical skills, implying a need to provide detailed information about the maths required for a range of careers.

We also need further research into when exactly young boys’ and girls’ ability beliefs and interests begin to diverge, so that intervention efforts can be concentrated from that point. A United States study found gender differences in mathematical ability beliefs as early as grade 2!

The fact that these differences emerge early does not mean that we should not be trying to address them through secondary school, where there may be much that educators can do to try and increase girls’ interest in mathematics.

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