



Information Center

Women Teachers Can Help Bridge the Science Gender Gap

More women teachers and better teaching methods will encourage girls to engage with science, says science educator Minella Clutario Alarcon.

The lack of women scientists in high positions is quite common in both developed and developing countries. But in many developing countries, women find it particularly difficult to participate in science. Several obstacles stand in their way: negative attitudes arising from cultural and societal values; the decreasing number of science and mathematics teachers; persistent use of outdated methods of teaching science; and a lack of government support for promoting state-of-the-art methods in science education.

Cultural attitudes and societal values can be a significant barrier to women's education, especially in science. But new ways of teaching science can empower women and help remove the barrier of negative attitudes, paving the way for fruitful participation in the sciences. And teaching provides an opportunity for women scientists to make an important contribution in bridging the gender gap.

Traditional Roles

In some developing countries, girls cannot benefit from education at all because they are expected to stay at home and help with household chores while the boys in the family go to school. It is normal in some families to give priority to the educational development of boys.

In other countries, young women and girls cannot continue their education beyond school because they are married off early and are expected to devote their lives to their husband and family. When young women and girls are educated, they often receive no encouragement to study science and mathematics. This is because traditional beliefs dictate that these areas of study are appropriate only for males.

There are developing countries where women have more opportunities to study science, sometimes even up to a Master's degree. But some of these women (some willingly, others unwillingly) choose to end their careers in science to get married and raise a family. Others simply cannot compete with their male colleagues because, in the traditional role, they are expected to get home early to prepare the family meals. In general, women spend more time looking after the family.



Shortage of Teachers

Women scientists studying in universities or working in their chosen field tend to be the focus of discussions about bridging the gender gap in science. But school science teachers are involved in training the next generation of scientists, so they should not be overlooked.

In many developing countries, women science teachers become role models and play an essential role in attracting young women and girls into science — inspiring them and giving them confidence and strength to do better and achieve more in life.

But there is a shortage of school teachers, particularly women who teach science and mathematics. The UN Educational, Scientific and Cultural Organization (UNESCO) Institute for Statistics estimates that 96 countries will need a total of at least 1.9 million more teachers by 2015 than they did in 2007. Sub-Saharan Africa will be severely affected, with 27 of the 45 countries facing a critical gap.

This trend, together with the low number of women and girls studying science, aggravates the problem of women's under-representation in science in developing countries.

Educating young women and girls in the sciences empowers them, giving them the tools and the confidence to confront the cultural attitudes and societal values that deter the full participation of women in society.

Young women and girls who study science are able to think critically, analyse their personal circumstances and their environment, and, importantly, make informed decisions about their life.

Better Teaching

But the established science teaching methods are not good enough. We need to train and re-train women science teachers in effective and innovative methods of science teaching. This will give them a better understanding of science, allowing them to become science innovators and role models for young women and girls.

The traditional method of teaching science, based on lectures and memorising facts, is ineffective. To attract women science teachers, and to attract young women and girls into science, the way science is taught must be changed at all educational levels.

New approaches to teaching science should be student-centred and activity-based, engaging students actively



in the learning process. Research has shown that this style of teaching enables students to learn better and benefit more from science lessons.

For science education to be effective, it must be inclusive and should recognise how science teachers, scientists, families and the community work together to achieve learning and teaching goals.

Better funding for science education is needed to train more and better science teachers, especially women. Governments and nongovernmental organisations should promote continuing in-service training workshops and offer progressive teacher education curricula that embrace student-centred and activity-based science teaching.

It is both urgent and essential to support and fund these training activities to change the way science is taught.

Every country stands to benefit greatly from training women science teachers in effective teaching methods and from an increase in the number of women who study and work in science.

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Subtitle Text
