

MATHS ARE A MUST FOR PROBLEM-SOLVING

An aversion to mathematics among young people requires broad, creative efforts to encourage skills and raise awareness of its value to society.

 by Lilliam Alvarez Díaz



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Basic sciences are the DNA of innovation. For every country, without exception, the capacity for creativity and innovation is strongly related with critical mass in physics and chemistry, engineering and mathematics. These sciences produce technologies, generating products with high added value, and in this way they demonstrate how science can drive economic and social development.

Mathematics is a must because it is the only discipline, besides language, that is taught in primary, secondary and tertiary education. Maths provides advantages for verbal reasoning, for learning skills for better student progression, increasing the self-esteem.

Mathematics provides models and tools to solve many problems in science and technology – and in society. But it also helps to develop the abstract thinking that is the root of reasoning and of understanding the world. The basic ability to divide big and complex problems into segments or into more simple problems – these skills prepare people for daily life in a world increasingly dependent on the use of knowledge and technology.

While maths skills are fundamentally important, recent studies in many regions have highlighted an alarming rejection of science and

maths studies among young people – and there are few indications that this trend is improving. Further, girls are less interested in science education than boys. These gender differences are reflected in the numbers of women choosing academic studies in maths, science and technology. The risk is that science and the global research enterprise could be losing half of available talent.

Mathematics has been declared a priority by the International Council for Science [ICSU] office in Latin America and the Caribbean. Joint efforts by TWAS and national academies must focus urgently on improved education and training of maths teachers, with the input of mathematicians and researchers. Global Master programs especially designed for basic school teachers are needed.

Maths Olympiads are a popular way to promote maths skills, but in most of the world they are limited to students who have already shown special ability. And yet such competitions do not appear to have wide impact on maths education. We need more public and democratic contests, widening the scope and involving teachers, families, rural schools and even prisons. A long-term project in mathematics education should create a repository with open links to teaching resources and best practices in maths education. And we must consider how to re-shape education for new generations of “digital natives” born into the culture of information and communication technology.

The academies and national scientific unions must call attention to these needs in order to influence national policies and establish mathematics and maths education as priorities for sustainable development. ■

