

ZMATH 2009d.00182

Koshy, Valsa; Ernest, Paul; Casey, Ron

Mathematically gifted and talented learners: theory and practice.

Int. J. Math. Educ. Sci. Technol. 40, No. 2, 213-228 (2009).

Summary: There is growing recognition of the special needs of mathematically gifted learners. This article reviews policy developments and current research and theory on giftedness in mathematics. It includes a discussion of the nature of mathematical ability as well as the factors that make up giftedness in mathematics. The article is set in the context of current developments in Mathematics Education and Gifted Education in the UK and their implications for Science and Technology. It argues that early identification and appropriate provision for younger mathematically promising pupils capitalizes on an intellectual resource which could provide future mathematicians as well as specialists in Science or Technology. Drawing on a Vygotskian framework, it is suggested that the mathematically gifted require appropriate cognitive challenges as well as attitudinally and motivationally enhancing experiences. In the second half of this article we report on an initiative in which we worked with teachers to identify mathematically gifted pupils and to provide effective enrichment support for them, in a number of London Local Authorities. A number of significant issues are raised relating to the identification of mathematical talent, enrichment provision for students and teachers' professional development.

Classification: C90 C40

Keywords: mathematical giftedness; enrichment; zone of proximal development; mathematics learning; science; technology; mathematical abilities; research

doi:10.1080/00207390802566907