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Investigating the effect of general creativity, mathematical knowledge and intelligence on mathematical creativity.

Lindmeier, Anke M. (ed.) et al., Proceedings of the 37th conference of the International Group for the Psychology of Mathematics Education "Mathematics learning across the life span", PME 37, Kiel, Germany, July 28–August 2, 2013. Vol. 3. Kiel: IPN–Leibniz Institute for Science and Mathematics Education at the University of Kiel (ISBN 978-3-89088-289-5). 137-144 (2013).

Summary: This study examines the predictive power of several cognitive factors on mathematical creativity. Data were collected through the administration of four tests – a mathematical creativity test, a general creativity test, a mathematical knowledge test, and an intelligence test – to 476 elementary school students. Data analysis revealed that mathematical creativity is defined across fluency, flexibility and originality, whereas the three abilities are interrelated. Moreover, students' mathematical knowledge, general creative ability and fluid intelligence can significantly predict mathematical creativity. Among these factors holding domain specific abilities as well as domain general abilities are crucial for the appearance of creative behaviour in the domain of mathematics.

Classification: C30
Keywords: creativity; mathematical knowledge; intelligence; fluency; flexibility; originality