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Mathematical creativity: the unexpected links.

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Summary: Creativity in mathematics is identified in many forms or we can say is made up of many components. One of these components is The Unexpected Links where one tries to solve a mathematical problem in a nontraditional manner that requires the formation of hidden bridges between distinct mathematical domains or even between seemingly far ideas within the same domain. In this article, we design problems that express unexpected links in mathematics and suit students of intermediate and secondary levels. We prove their feasibility through teachers' testimonies and through introducing them in classrooms and collecting students' attitudes with respect to understanding and interest. Results confirm that students can sense such component and that designed problems had caught teachers' and students' interest.

Classification: D50 E50 C40

Keywords: mathematical creativity; research; teacher interviews; student experiments; lower secondary; upper secondary; proving; aesthetics; unexpected links; teaching; problem posing; real functions and geometry; inequalities and functions; triangles and prime numbers; linked properties in a triangle; heights; bisectors; problem sets; applications of mathematics to mathematics

http://www.math.unt.edu/tmme/vol12no1thru3/30_TMEvol12.ElSahilietal.pdf