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Shifting the paradigm? Beautifully moving.

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From the text: When I was training as a maths teacher I remember being slightly shocked by some glowing feedback I received from my tutor, visiting from the university. The lesson was simple (an introduction to triangles and related vocabulary), the end goals not ambitious (understand and use the words 'congruent' and 'similar'), and my classroom management had not been particularly praiseworthy. The part that had garnered such positive feedback was a simple dynamic geometry file projected on the board. A triangle had a (general) point marked on one side, from which lines parallel to the other two sides were drawn, until they met these other two sides. So why the praise from my tutor? My picture was moving. The general point on the left side was sliding up and down, and the rest of the construction (the parallel lines) moving with it. Dynamic geometry software has changed things here. When you can drag a point yourself, and see a diagram change (and some things not change) you immediately begin to understand the generality contained therein. I do realize the irony of writing a printed, static article about the importance of dynamic, non-static images. Perhaps this can best be addressed by some examples on calculus (chords, tangents), golden ration (sunflower, irrational numbers), Mandelbrot set (spreadsheet function, complex plane), stochastics (probability, binomial distribution), at the end of this article, in the form of links to GeoGebra Tube.

Classification: U70 G40 D30
Keywords: dynamic geometry software; mathematical software; computer as educational medium; generalizing; plane geometry; congruent figures; similarity; differential calculus; tangents; divine proportion; irrational numbers; Mandelbrot sets; complex numbers; iteration; binomial distribution; probability