THE VIRTUES OF BUILDING ON SAND

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Ten years ago we began developing TinkerPlots, a data-analysis tool for young students. The premise that guided our design was that the software should allow young students to accomplish goals that made sense to them, using operations that they understood. Having succeeded in doing this, the challenge then became figuring out how to build on this "foundation of sand" so as to move novices towards expertise. I will describe our recent efforts to design capabilities such as smoothed average fits of bivariate data and residual analyses by working up from capabilities and operations that novices perform with understanding. Results of testing these in classrooms suggest that students begin to incorporate new statistical tools and ideas into their repertoire by initially using them in conjunction with their existing, often limited, tool set.

Paper not included

In C. Reading (Ed.), *Data and context in statistics education: Towards an evidence-based society. Proceedings of the Eighth International Conference on Teaching Statistics (ICOTS8, July, 2010), Ljubljana, Slovenia*. Voorburg, The Netherlands: International Statistical Institute. www.stat.auckland.ac.nz/~iase/publications.php