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Supporting the development of college-level students' statistical reasoning: the role of models and modeling.

Amado, Nélia (ed.) et al., Proceedings of the 12th international conference on technology in mathematics teaching, ICTMT 12. Faro: University of Algarve (ISBN 978-989-8472-68-7). 58-67 (2015).

Summary: The transition from descriptive to inferential statistics is a known area of difficulties for students. This article shares the experiences from a teaching experiment in a graduate-level quantitative research methods course, which adopted a non-conventional approach to teaching statistics that put models and modelling at the core of the curriculum. Findings indicate that the informal approach to statistical inference adopted in the course, which focused on modelling and simulation using the dynamic statistics software Tinkerplots2 as an investigation tool, promoted powerful ways of thinking statistically, while at the same time also developing students' appreciation for the practical value of statistics. The affordances offered by the technological tool for building data models and for experimenting with these models to make sense of the situation at hand, were instrumental in supporting student understanding of both informal and formal inferential statistics.

Classification: K75 K85 U75
Keywords: modelling; dynamic statistics software; model eliciting activities; inferential statistics; informal statistical inference