

Informal Inferential Reasoning using Computer-based Simulations to Model Statistical Questions

Theodosia Prodromou*

University of New England, Armidale, Australia Theodosia.prodromou@une.edu.au

A solid understanding of inferential statistics is of major importance for designing and interpreting empirical results in any scientific discipline. The article investigates how 14- to 15- year-olds build informal conceptions of inferential statistics as they engage in a modelling process and build their own computer simulations with dynamic statistical software. This study proposes four primary phases of informal inferential reasoning for the students in the statistical modelling and simulation process. Findings show shifts in the conceptual structures across the four phases and point to the potential of all of these phases for fostering the development of students' robust knowledge of the logic of inference when using computer based simulations to model and investigate statistical questions.

Key Words: inference, statistics, modelling, simulation