

ZMATH 2007f.00099

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Engineering students designing a statistical procedure for quantifying variability.

J. Math. Behav. 26, No. 2, 178-188 (2007).

Summary: The study examined first-year engineering students' responses to a statistics task that asked them to generate a procedure for quantifying variability in a data set from an engineering context. Teams used technological tools to perform computations, and their final product was a ranking procedure. The students could use any statistical measures, and they needed to explain their ranking procedure in detail. The responses were first categorized by the statistical measures used. The responses were categorized using a cyclic model development perspective moving from primitive to more sophisticated responses. The modeling cycle framework provided a developmental view of students' responses and use of statistics. The study raised questions related to the measurement of variability, the application of statistics, and the process teams go through when designing an analysis procedure.

Classification: C75 K45 D55

Keywords: statistics; variability; undergraduate engineering; modeling; problem solving

doi:10.1016/j.jmathb.2007.06.001