

ZMATH 2016e.00506

Rubin, Jim; Rajakaruna, Manikya

Teaching and assessing higher order thinking in the mathematics classroom with clickers.

Math. Educ. (Ank.) 10, No. 1, 37-51 (2015).

Summary: Many schools have invested in clicker technology, due to the capacity of the software to track formative assessment and the increased motivation that students show for incorporating technology in the classroom. As with any adoption of new software that demands amending pedagogy and learning applications, the extent to which clickers are living up to expectations has not yet become apparent. The present study sought to explore the potential of using clickers to teach the reasoning processes behind solving higher order thinking word problems in a mathematics class. A pilot study was conducted with a college algebra class to refine questions used in the coursework and field test a survey to measure student attitudes towards the teaching methodology. The main study took place over the fall semester with a college algebra class ($N = 21$). Results showed increased student motivation and acumen for using the technology and higher test scores, but frustration on the part of both the teacher and students when trying to apply the pedagogy for the purpose of learning higher order thinking reasoning processes. The potential for the technology to offer an alternative for formative assessment was a strong positive element.

Classification: D65 D55 U75

Keywords: educational media; classroom response systems; remote personal response systems; clickers; higher-order thinking problems; word problems; reasoning; multiple-choice questions; research; experimental teaching; college algebra; educational diagnosis; analysis of learning outcomes; problem-solving skills; student attitudes

doi:10.12973/mathedu.2015.103a