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ZMATH 2013b.00394

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Effectiveness of using games in tertiary-level mathematics classrooms.

Int. J. Sci. Math. Educ. 10, No. 6, 1369-1392 (2012).

Summary: The primary focus of this study was to investigate the effectiveness of games when used in tertiary-level mathematics classes in the United Arab Emirates. Our study incorporated a mixed-method approach that involved surveys (to assess students' perceptions of the learning environment and attitudes towards mathematics), interviews, observations of classes and narrative stories. A sample of 90 students from 3 tertiary-level institutions in Abu Dhabi participated in the study. In-depth qualitative data provided information about the introduction and use of games in mathematics. A narrative, based on classroom observations of students playing Jeopardy!-type mathematics games, provided insights into games in action in the classrooms. The data were analysed to examine students' interactions during the games and to triangulate, clarify and explain students' responses to the learning environment and attitude questionnaires. To examine pre-post differences in students perceptions of the learning environment and their attitudes, 2 questionnaires were administered to students before and after the introduction of games. Pre-post differences for 3 of the 6 learning environment scales (teacher support, involvement, personal relevance) and both attitude scales (enjoyment of mathematics lessons and academic efficacy scales) were statistically significant. Information obtained from interviews with students and teachers were used to explain the pre-post differences.

Classification: D43 C73 C33 C32
Keywords: mathematical games; academic efficacy; attitudes; pedagogical tools
doi:10.1007/s10763-012-9340-5