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Designing interactive representations for learning fraction equivalence.

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). 403-410 (2015).

Summary: This paper describes a study that investigated the use of a tool in an exploratory learning environment (ELE) designed to support students' understanding of equivalent fractions. The study, part of a larger project, involved 67 9–11 year old students in England. It addressed the question: How does a partitioning tool support students' conceptual understanding of equivalence? Data were collected through observations, students' written work in an equivalence task, and a written self-reflection on learning at the end of their time in the ELE. Results showed that using the partitioning tool with an area representation was instrumental in challenging some students' preconceived ideas about equivalent fractions and that the students were able to develop situated abstractions about fraction equivalence.

Classification: U72 U73 F42 F43

Keywords: equivalent fractions; exploratory learning environments; design; partitioning; fraction representations