

ZMATH 06675784

Burrill, Gail

Designing interactive dynamic technology activities to support the development of conceptual understanding.

Leung, Allen (ed.) et al., Digital technologies in designing mathematics education tasks. Potential and pitfalls. Cham: Springer (ISBN 978-3-319-43421-6/hbk; 978-3-319-43423-0/ebook). Mathematics Education in the Digital Era 8, 303-328 (2017).

Summary: Technology can make a difference in teaching and learning mathematics when it serves as a vehicle for learning and not just as a tool to crunch numbers and to draw graphs. This paper discusses a technology leveraged program to develop student understanding of core mathematical concepts. A sequence of applet-like dynamically linked documents allows students to take a meaningful mathematical action, immediately see the consequences, and then reflect on those consequences in content areas associated with the middle grades U.S. Common Core State Standards. The materials are based on the research literature about student learning, in particular enabling students to confront typical misconceptions, and designed to support carefully thought out mathematical progressions within and across the grades.

Classification: U70 D80 D30

Keywords: conceptual understanding; learning progressions; interactive dynamic technology; action consequence principle

doi:10.1007/978-3-319-43423-0_15