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Reflections on significant developments in designing SimCalc software.

Hegedus, Stephen J. (ed.) et al., The SimCalc vision and contributions. Democratizing access to important mathematics. Dordrecht: Springer (ISBN 978-94-007-5695-3/hbk; 978-94-007-5696-0/ebook). Advances in Mathematics Education, 65-83 (2013).

Summary: We designed and developed the SimCalc software using technological affordances as a way to introduce new mathematical affordances into the classroom. This view was especially advantageous as available technology changed significantly during SimCalc's development cycle. Driven by observations and opportunities, we frequently modified our software according to our changing understanding. In this chapter, we describe the rationale for changes to the software by looking at decisions that resulted in significant modifications; we examine how our work on this software altered our view of the learning affordances SimCalc provides. Our examples are within three main areas of research: representational infrastructures to support mathematically meaningful representations, activity structures (some that guided design and some that emerged from new affordances), and classroom connectivity which offered new forms of student participation. These and other decisions extend SimCalc beyond the development cycle, allowing it to continue to be useful to its existing base of users and extending its reach to a wider variety of students around the world.

Classification: R20 U50

Keywords: computer aided instruction; development of instructional software; activity structures; classroom connectivity; mathematics platforms; representational infrastructure

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