

ZMATH 2007b.00355

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Slower algebra students meet faster tools: Solving algebra word problems with graphing software.

J. Res. Math. Educ. 37, No. 5, 356-387 (2006).

Summary: The article discusses the ways that less successful mathematics students used graphing software with capabilities similar to a basic graphing calculator to solve algebra problems in context. The study is based on interviewing students who learned algebra for 3 years in an environment where software tools were always present. We found differences between the work of these less successful students and the traditional problem-solving patterns of less successful students. These less successful students used the graphing software to obtain a broader view, to confirm conjectures, and to complete difficult operations. However, they delayed using symbolic formalism, and most of their solution attempts focused on numeric and graphic representations. Their process of reaching a solution was found to be relatively long, and the graphing software tool was often not used at all because it did not support symbolic formulation and manipulations.

Classification: H30 I20 U70 M10

Keywords: elementary algebra; graph of a function; functions; graphing calculators; mathematical modeling; reform of mathematics education; computer as educational medium; visualization; graphical representations; lower secondary; mathematical software; research; empirical investigations; interviews
doi:10.2307/30034859