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A problem-based schema analysis in algebra.

Barton, Bill et al., Mathematics education in the South Pacific. Vol. 1 and 2. , (ISBN 0-86869-048-1; 0-86869-053-8; 0-86869-054-6). 187-194 (2002).

The development of students' algebraic understanding is generally accepted to be one of the major goals of K-12 mathematics teaching. In this paper I attempt to examine this understanding by characterising a group of high school students' algebraic knowledge and patterns of use of that knowledge during the solution of selected problems. Results show that these students tended to show acceptable levels of proficiency with problems that involve substitution of values for variables, and simplification of equations. However, students experienced difficulties with the solution of equations and the interpretation of variables both in symbolic and graphical modes. These results are interpreted as suggesting that the participating students' understanding was buttressed mainly by schemas that were dominated by procedural knowledge of algebra. (orig.)

Classification: H33