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Middle school mathematics teachers' knowledge of students' understanding of core algebraic concepts: equal sign and variable.

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Summary: The article reports results from a study focused on teachers' knowledge of students' understanding of core algebraic concepts. In particular, the study examined middle school mathematics teachers' knowledge of students' understanding of the equal sign and variable and students' success applying their understanding of these concepts. Interview data were collected from 20 middle school teachers regarding their predictions of student responses to written assessment items focusing on the equal sign and variable. Teachers' predictions of students' understanding of variable aligned to a large extent with students' actual responses to corresponding items. In contrast, teachers' predictions of students' understanding of the equal sign did not correspond with actual student responses. Further, teachers rarely identified misconceptions about either variable or the equal sign as an obstacle to solving problems that required application of these concepts. Implications for teacher professional development are discussed.

Classification: H30 C30 D79

Keywords: lower secondary; prognoses; tests; educational diagnosis; elementary algebra; pedagogical content knowledge; knowledge level; mathematical ability; student errors; learning problems; thinking; teacher education

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