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**A set for relational reasoning: facilitation of algebraic modeling by a fraction task.**

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Summary: Recent work has identified correlations between early mastery of fractions and later math achievement, especially in algebra. However, causal connections between aspects of reasoning with fractions and improved algebra performance have yet to be established. The current study investigated whether relational reasoning with fractions facilitates subsequent algebraic reasoning using both pre-algebra students and adult college students. Participants were first given either a relational reasoning fractions task or a fraction algebra procedures control task. Then, all participants solved word problems and constructed algebraic equations in either multiplication or division format. The word problems and the equation construction tasks involved simple multiplicative comparison statements such as “There are 4 times as many students as teachers in a classroom.” Performance on the algebraic equation construction task was enhanced for participants who had previously completed the relational fractions task compared with those who completed the fraction algebra procedures task. This finding suggests that relational reasoning with fractions can establish a relational set that promotes students’ tendency to model relations using algebraic expressions.

*Classification:* F43 F93 H33

*Keywords:* rational numbers; fractions; algebra; relational modeling; numerical cognition; word problems; problem solving

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