

ZMATH 2014d.00561

Timmerman, Maria A.

Making connections: elementary teachers' construction of division word problems and representations.

Sch. Sci. Math. 114, No. 3, 114-124 (2014).

Summary: If teachers make few connections among multiple representations of division, supporting students in using representations to develop operation sense demanded by national standards will not occur. Studies have investigated how prospective and practicing teachers use representations to develop knowledge of fraction division. However, few studies examined primary (K-3) teachers' learning of contextual division problems, making connections among representations of division, and resolving the ambiguity of representing quotients with remainders. A written post-course assessment provided evidence that most teachers created partitive division word problems, used a set model without splitting the remainder, and wrote equations with limited success. Post-course written reflections demonstrated that many teachers developed pedagogical knowledge for helping students make connections among multiple representations, and mathematical knowledge of unit fractions. These findings suggest two areas that have implications for mathematics teacher educators who design professional development courses to facilitate teachers' learning of mathematical content and pedagogical knowledge of division and fraction relationships.

Classification: F90 F30 F40 D50

Keywords: division; fractions; multiple representations; word problems; unit fractions; problem posing
doi:10.1111/ssm.12059