

PRE-SERVICE PRIMARY TEACHERS POSING PROBLEMS

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The activity of Problem-posing (PP) allows us to assess and understand the mathematical thinking and learning of students (Cai & Hwang, 2020). We developed a study of PP with pre-service primary teachers (PSTs) focused on PP as a cognitive activity (Liljedahl & Cai, 2021) due to its relevance for their professional development. The objective is to analyze PSTs' use of fractions to pose problems, a topic that investigation says that primary teachers still have difficulties (Yao et al., 2021).

A group of 18 PSTs were asked to pose three problems with two given fractions. We studied fraction understandings, mathematical structures and contextualization that PSTs most frequently use in their proposed problems. Results of the 52 problems proposed show that 28.8% of them had insufficient information, the most common fraction meanings used by PSTs were part-whole (30.8%) and operator (38.5%), and the mathematical structures additive (26.9%) and order (19.2%) were the most selected. On the other hand, contexts related to pizzas or pies (34.6%) and measurement situations (21.1%) are the most used, and all of them presented a continuous representation of fractions. The study reveals some notable absences: problems with multiplicative structure, use of the discrete representation of fractions and few problems using fractions with the meaning of division, ratio or decimal. The results suggest that PSTs construct fraction problems, but the variety of fraction structures and meanings are relatively limited. We continue further analysis of PP and the role of specific PP training.

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