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## Abstract

The focus of this article is methodological, on how teachers' participation in practice-based research coacts with research quality. Educational design research is an example of a practice-based research approach often used in mathematics education with the goal of developing both the theories and the practice of teaching and learning mathematics. In this article, one such educational design research study on problem solving in Swedish preschool class is used as an example of how teachers' participation in practice-based research can develop and of how different kinds of collaboration between researchers and teachers coact with research quality. One conclusion of the methodological meta-analysis is that there is a challenging tension between ensuring external validity of a study versus enabling internal validity and improvement of practice.

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