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Preservice teachers' conceptual and procedural knowledge of fraction operations: a comparative study of the United States and Taiwan.

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Summary: This study examined (a) the differences in preservice teachers' procedural knowledge in four areas of fraction operations in Taiwan and the United States, (b) the differences in preservice teachers' conceptual knowledge in four areas of fraction operations in Taiwan and the United States, and (c) correlation in preservice teachers' conceptual knowledge and procedural knowledge of fractions in Taiwan and the United States. Participants were preservice teachers ($N = 49$) in a teacher education program in the United States and comparable Chinese preservice teachers ($N = 47$). Results indicated that Chinese preservice teachers performed better in procedural knowledge on fraction operations than American preservice teachers. No significant differences were found for conceptual knowledge on fraction division. Further, the correlation in this study showed that for Chinese and American preservice teachers, the relationship between conceptual and procedural knowledge of fraction operations was weak.

Classification: F49

Keywords: preservice teachers; fraction knowledge; teacher knowledge; cross-culture

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