

# **Taking Whorf to School: Does Language Reform Improve Student Learning?**

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## **Abstract**

East Asian students routinely outperform American peers in mathematics. One source of this learning gap may be linguistic, such as explicitly naming part-whole relations in fractions (e.g., of four parts, one in Korean vs. one-fourth in English). Our study examined whether adopting such language would improve American children's number-line estimates. To test this, 83 10-year-olds were read fractions using either Korean-style or English names over pretest, training, and posttest. In both conditions, number-line problems either had no landmarks, landmarks that matched the denominator, or landmarks that did not match the denominator. As expected, we observed a session by problem type interaction ( $F=2.71$ ,  $p<.05$ ), indicating that feedback improved accuracy most for problems involving matching landmarks. Surprisingly, the effect of Korean naming was to reduce accuracy across all problems and test phases ( $p<.01$ ). Results offer an important warning against linguistic reform that may be harmful for American students.