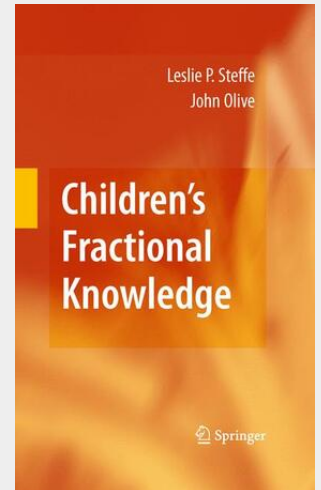


Children's Fractional Knowledge

Children's Fractional Knowledge elegantly tracks the construction of knowledge, both by children learning new methods of reasoning and by the researchers studying their methods. The book challenges the widely held belief that children's whole number knowledge is a distraction from their learning of fractions by positing that their fractional learning involves reorganizing—not simply using or building upon—their whole number knowledge. This hypothesis is explained in detail using examples of actual grade-schoolers approaching problems in fractions including the schemes they construct to relate parts to a whole, to produce a fraction as a multiple of a unit part, to transform a fraction into a commensurate fraction, or to combine two fractions multiplicatively or additively. These case studies provide a singular journey into children's mathematics experience, which often varies greatly from that of adults. Moreover, the authors' descriptive terms reflect children's quantitative operations, as opposed to adult mathematical phrases rooted in concepts that do not reflect—and which in the classroom may even suppress—youngsters' learning experiences. Highlights of the coverage: - Toward a formulation of a mathematics of living instead of being - Operations that produce numerical counting schemes - Case studies: children's part-whole, partitive, iterative, and other fraction schemes - Using the generalized number sequence to produce fraction schemes - Redefining school mathematics This fresh perspective is of immediate importance to researchers in mathematics education. With the up-close lens onto mathematical development found in Children's Fractional Knowledge, readers can work toward creating more effective methods for improving young learners' quantitative reasoning skills.



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