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Hunt, Jessica Heather; Tzur, Ron; Westenskow, Arla

Evolution of unit fraction conceptions in two fifth-graders with a learning disability: an exploratory study.

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Summary: The literature seems limited in what is known about conceptual processes that underlie evolution of students with learning disabilities (SLD) conceptions of fractions. This exploratory study examines how a foundational scheme of unit fractions ($1/n$) may evolve through the mathematical activity of two fifth grade girls. We analyze data segments from episodes conducted during a teaching experiment grounded in the activity of iterating estimates of one person's equal share. Our findings include four distinct conceptual stages: (1) No Conception of the Nature of Adjustment to the Magnitude of a Unit Fraction, (2) Evolving Anticipation of the Nature of Adjustment but not of its Relative Amount, (3) Anticipation of the Nature of Adjustment with an Evolving Partial Amount, and (4) a Dual Anticipation of the Nature and Amount of Adjustment. Findings demonstrate each girl was able to use her constructed scheme to successfully solve and reason about novel problems. We discuss the need for more research to confirm the findings from this study, while offering a conjecture of the possibilities for more SLDs to advance their conceptions of fractions in future interventions.

Classification: F43 C33 C43 D73

Keywords: unit fractions; fraction concept; learning disabilities; difficulties

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