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Mueller, Mary; Maher, Carolyn

Learning to reason in an informal math after-school program.

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Summary: This research was conducted during an after-school partnership between a University and school district in an economically depressed, urban area. The school population consists of 99% African American and Latino students. During the informal after-school math program, a group of 24 6th-grade students from a low socioeconomic community worked collaboratively on open-ended problems involving fractions. The students, in their problem solving discussions, coconstructed arguments and provided justifications for their solutions. In the process, they questioned, corrected, and built on each other's ideas. This paper describes the types of student reasoning that emerged in the process of justifying solutions to the problems posed. It illustrates how the students' arguments developed over time. The findings of this study indicate that, within an environment that invites exploration and collaboration, students can be engaged in defending their reasoning in both their small groups and within the larger community. In the process of justifying, they naturally build arguments that take the form of proof. (Contains 10 figures, 1 table, and 3 footnotes.) (ERIC)

Classification: B63 C63

Keywords: after school programs; urban areas; informal education; college school cooperation; disadvantaged youth; poverty; African Americans; Hispanic Americans; cooperative learning; problem solving; mathematical concepts; peer teaching; persuasive discourse; thinking skills; mathematical logic; models
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