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**Vaiyavutjamai, Pongchawee; Clements, M.A.**

**Effects of classroom instruction on students' understanding of quadratic equations.**

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Summary: Two hundred and thirty-one students in six Grade 9 classes in two government secondary schools located near Chiang Mai, Thailand, attempted to solve the same 18 quadratic equations before and after participating in 11 lessons on quadratic equations. Data from the students' written responses to the equations, together with data in the form of transcripts of 36 interviews with 18 interviewees (a high performer, a medium performer, and a low performer from each of the six classes), were analysed. Using a rubric for assessing students' understanding, the analysis revealed that at the post-teaching stage students improved their performance on quadratic equations and had a better understanding of associated concepts than they had at the pre-teaching stage. However, many were still confused about the concepts of a variable and of a "solution" to a quadratic equation. After the lessons, most students had acquired neither an instrumental nor a relational understanding of the mathematics associated with solving elementary quadratic equations. (Contains 8 tables and 2 figures.) (ERIC)

*Classification:* H33 C73

*Keywords:* equations; grade 9; elementary algebra; secondary school mathematics; problem solving; scoring rubrics; teaching methods; interviews; mathematics achievement; mathematical concepts; instructional effectiveness

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