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Teaching and learning number sense - an intervention study of fifth grade students in Taiwan.

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Summary: Two classes (one experimental and one control) in a public elementary school located in southern Taiwan participated in this study. Number sense activities were conducted in the experimental class as supplementary teaching materials, while the control class followed the standard mathematics curriculum. Data indicate that there are statistically significant differences between pretest and posttest (pretest and retention-test) scores for the experimental and control classes at the 0.01 level. The scores for the experimental class increased 44% after instruction (the mean score went from 12.35 to 17.81), while the scores for the control class increased only 10% after instruction (the mean score went from 11.29 to 12.42). Compared to the control class, the experimental class made much more progress on number sense tests. Results indicate that students in the teaching class (not including the students in the low level) advanced in their use of number sense strategies when responding to interview questions. The data demonstrate that the teaching of number sense activities, executed in the experimental class, is effective in developing children's number sense. Furthermore, the results of retention demonstrate that the students' learning was meaningful and significant.

Classification: F22 F23 D22 D23 C72 C73

Keywords: benchmarks; control class; estimation; experimental class; number sense; elementary arithmetic; grade 5; primary education; comparative studies; empirical investigations

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