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Characteristics of second graders' mathematical writing.**

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Summary: This study compared the characteristics of second graders' mathematical writing between an intervention and comparison group. Two six-week Project M2 units were implemented with students in the intervention group. The units position students to communicate in ways similar to mathematicians, including engaging in verbal discourse where they themselves make sense of the mathematics through discussion and debate, writing about their reasoning on an ongoing basis, and utilizing mathematical vocabulary while communicating in any medium. Students in the comparison group learned from the regular school curriculum. Students in both the intervention and comparison groups conveyed high and low levels of content knowledge as indicated in archived data from an open-response end-of-the-year assessment. A multivariate analysis of variance indicated several differences favoring the intervention group. Both the high- and low-level intervention subgroups outperformed the comparison group in their ability to (a) provide reasoning, (b) attempt to use formal mathematical vocabulary, and (c) correctly use formal mathematical vocabulary in their writing. The low-level intervention subgroup also outperformed the respective comparison subgroup in their use of (a) complete sentences and (b) linking words. There were no differences between groups in their attempt at writing and attempts at and usage of informal mathematical vocabulary.

Classification: C52 E42 G42 G32

Keywords: communication; learning processes; geometry; measurement; classroom discourse; teachers and teaching

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