

**ZMATH 2015f.00200**

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**At the intersection of mathematics and language: examining mathematical strategies and explanations by grade and English learner status.**

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Summary: Among the requirements of new College and Career Ready Standards are students' abilities to explain what mathematics problems are asking, how to solve them, and why solutions make sense. A fundamental question is, how might the mathematical strategies that students adopt during tasks impact the language of their explanations? Linguistic demands are expected to be challenging to English learner and proficient students alike. English learner (EL;  $n = 62$ ) and English-only or proficient ( $n = 58$ ) kindergarten, 3rd, and 5th grade students completed a mathematics task and explained their solutions. Overall, explanations of less complex strategies contained fewer words, shorter sentences, less frequent general academic vocabulary and temporal discourse connectors, and fewer characteristics of well-developed explanations. Explanations produced by English proficient students were linguistically more sophisticated but not more cogent than those of EL students. There were differences in connections between strategies and explanations by grade but few by EL status. We discuss implications for implementing new mathematics standards with all students.

*Classification:* C50 C30 D50 C40

*Keywords:* discourse; English learners; English-only and proficient students; formative practices; grade effects; language; mathematical explanations; problem-solving strategies; standards

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