Models of growth: Longitudinal expectancy-value in elementary mathematics
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ABSTRACT
We examined how expectancy and value for math changes throughout two years and found that non-linear models had better fit than linear ones. Motivation generally declined over the two years and was lowest during the middle of the school year. Students in 4th grade had lower motivation than those in 3rd grade.

INTRODUCTION
• Motivation is critical for success (Eccles & Wigfield, 2020)
• Motivation, including math motivation, declines in middle childhood (Wigfield et al., 2020)
• This decline may not be linear nor monolithic.
What are trends in expectancies, current value, and future value across two years? Are these non-linear? The same by grade?

METHOD
• Third (n=4,270) and fourth (n=3,618) grade students
  ⁵0% female, ⁷5% qualified for free/reduced lunch, ¹⁸% Black, ¹⁸% Hispanic, ⁵²% White
• Survey given six times over two years

RESULTS
Full model better fit than the null? ✓ Linear model (R²overall = 1.11%) ✓ Factor model (R²overall = 1.31%)
Interaction better fit than the full? ✓ Linear model (R²overall = 1.16%) ✓ Factor model (R²overall = 1.38%)

CONCLUSION
Mathematics motivation had non-linear trends over two years. There was often a dip in motivation mid school year. Fourth graders had lower motivation than third graders.

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REFERENCES