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**Constructing graphical representations: middle schoolers' intuitions and developing knowledge about slope and Y-intercept.**

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Summary: Middle-school students are expected to understand key components of graphs, such as slope and y-intercept. However, constructing graphs is a skill that has received relatively little research attention. This study examined students' construction of graphs of linear functions, focusing specifically on the relative difficulties of graphing slope and y-intercept. Sixth-graders' responses prior to formal instruction in graphing reveal their intuitions about slope and y-intercept, and seventh- and eighth-graders' performance indicates how instruction shapes understanding. Students' performance in graphing slope and y-intercept from verbally presented linear functions was assessed both for graphs with quantitative features and graphs with qualitative features. Students had more difficulty graphing y-intercept than slope, particularly in graphs with qualitative features. Errors also differed between contexts. The findings suggest that it would be valuable for additional instructional time to be devoted to y-intercept and to qualitative contexts.

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