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Data seen through different lenses.

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Summary: Statistical reasoning focuses on properties that belong not to individual data values but to the entire aggregate. We analyze students' statements from three different sources to explore possible building blocks of the idea of data as aggregate and speculate on how young students go about putting these ideas together. We identify four general perspectives that students use in working with data, which in addition to an aggregate perspective include regarding data as pointers, as case values, and as classifiers. Some students seem inclined to view data from only one of these three alternative perspectives, which then influences the types of questions they ask, the data representations they generate or prefer, the interpretations they give to notions such as the average, and the conclusions they draw from the data.

Classification: K40 K70

Keywords: interpreting graphs; interpreting distributions; conceptions of averages; statistical reasoning; informal statistical inference

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