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Examining students' conceptions using sum functions.

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Summary: Students' understanding of functions is a topic that has been researched extensively. In this qualitative study, five university students of varying mathematical backgrounds were interviewed to reveal strategies and misconceptions as they struggled with graphical and analytical tasks relating to sum functions. Weaker students are seen to rely heavily on algebraic approaches to solving problems and to have a strong urge to average graphically. Selection of an appropriate scale is problematic, as is the confusion of slope and height. Understanding functions as objects emerges as beneficial for the stronger students while function as process seems preeminent for the weaker ones. Implications for teaching are presented.

Classification: I25 D75 C35

Keywords: functions; concept formation; misconceptions; problem solving strategies; research; understanding; sum functions; college teaching