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Combining scaffolding for content and scaffolding for dialogue to support conceptual breakthroughs in understanding probability.

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Summary: In this paper, we explore the relationship between scaffolding, dialogue, and conceptual breakthroughs, using data from a design-based research study that focuses on the development of understanding of probability in 10–12 year old students. The aim of the study is to gain insight into how the combination of scaffolding for content using technology and scaffolding for dialogue can facilitate conceptual breakthroughs. We analyse video-recordings and transcripts of pairs and triads of students solving problems using the TinkerPlots software with teacher interventions, focusing on moments of conceptual breakthrough. Data show that dialogue scaffolding promotes both dialogue moves specific to the context of probability and dialogue in itself. This paper focuses on episodes of learning that occur within dialogues framed and supported by dialogue scaffolding. We present this as support for our claim that combining scaffolding for content and scaffolding for dialogue can be effective in students' conceptual development. This finding contributes to our understanding of both scaffolding and dialogic teaching in mathematics education by suggesting that scaffolding can be used effectively to prepare for conceptual development through dialogue.

Classification: D40 K50 U70

Keywords: scaffolding; dialogue; probability; technology

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