Individual Differences in the Effectiveness of the Worked Example Principle
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Abstract:
An abundance of laboratory work (e.g., Sweller & Cooper, 1985) has demonstrated that replacing approximately half of the problems in a problem set with worked examples leads to improved student learning; recent work has extended this principle to show that having students explain both correct and incorrect examples in real-world classroom settings is beneficial to learning (Booth, Lange, Koedinger, & Newton, 2013). However, despite strong support for this technique, prior laboratory studies have established that it can be more or less effective depending on students' prior knowledge of the content area (e.g., Kalyuga, Chandler, & Sweller, 2001; Grosse & Renkl, 2007). In a series of studies conducted in middle- and high-school math classes, we present data from classroom studies revealing that the degree of effectiveness of the materials may also differ based on other student characteristics, such as socio-economic status, ethnicity, gender, and prior spatial skills. These studies contribute to the ongoing debate about the ease of translating laboratory-proven techniques into real-world instructional settings, and argue for increased study of individual differences in the effectiveness of such techniques.