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The Lesson and the Learner: The Effect of Individual Differences and Task Scaffolding on Category Learning

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Abstract

The majority of conceptual change studies have investigated either manipulations of the learning environment or examined the effect of individual differences on conceptual change (Cordova, et al. 2014; Taasoobshirazi & Sinatra, 2011). In either case, the importance of interactions is left out. The present study investigates whether individual differences in hot and cold cognitive ability and task scaffolding interact with each other in their effect on conceptual change. Participants ($n = 299$) were tasked with determining how best to categorize whether a fictitious bacteria is oxygen resistant across three learning conditions. The results suggest that a refutational text produces better learning gains than an expository text, which outperforms feedback alone. Moreover, hot and cold cognitive factors were found to interact with learner scaffolding differentially. The results of this research project can be used to improve instructional practices, which, in turn, should aid learners understanding of scientific conceptions.