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Can misconceptions be forgotten? Evaluating the efficacy of a directed-forgetting paradigm in revising science misconceptions

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Abstract

Science misconceptions persist across development and have long-term consequences for achievement. Researchers have attempted to replace science misconceptions with correct information. Intentional forgetting, often studied using a directed forgetting (DF) paradigm, is one approach used to eliminate incorrect material. The present study aimed to identify which science misconceptions persist among adults and determine whether DF can be implemented to forget misconceptions. 147 undergraduates saw two lists of 11 science statements. For each statement, they provided a truthfulness and confidence rating before receiving the correct True/False rating. Half were told to remember both lists; half were told to forget the first list and remember the second. Results revealed that although accuracy and confidence increased overall, there were significant differences between science domains and no observable DF effect. This suggests that science misconceptions are even more persistent than previously thought, particularly for certain domains, and additional supports are needed to correct them.