

Public Abstract

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Title:EFFECTS OF SELF-EXPLANATION AS CAUSAL MECHANISM ELICITATION METHODOLOGY ON CAUSAL REASONING TASK PERFORMANCE

People have always tried to find explanations for how and why things happen to and around them. While understanding causality is fundamental for both science and everyday life, researchers found that people have a multitude of problems when dealing with causality. This research studies the effects of using a domain independent cognitive strategy, self-explanation (the explanation given to self as opposed to the explanation provided by others), on learners's™ performance on causal reasoning tasks. The strategy is used to encourage learners to think about and explain the mechanism(s) behind the causal relation(s) they are observing. For this purpose, an experiment was designed and conducted online.

Using a nonintrusive intervention based on brief practice of self-explanation this study shows that learners reporting higher levels of prior knowledge benefit from the use of this strategy, while the learners reporting lower levels do not. This suggests the existence of a threshold value/range of prior knowledge in the relevant domain(s) that needs to be reached before similar cognitive strategies based on self-explanation could become effective. The strategy can be implemented in both face-to-face and in online contexts, with almost no time cost for the learner. In addition, online instruction and learning environments as well as of other software applications could be easily designed or redesigned to include causal mechanism elicitation components or tools with significant improvement in learner performance on causal reasoning tasks.