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Consequences of cognitive offloading: Boosting performance but diminishing memory

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Modern technical tools allow the externalization of working memory processes (i.e. cognitive offloading). While offloading improves immediate task performance, little is known about its long-term consequences. In our experiments, the participants first solved a pattern copy task involving cognitive offloading and then completed a subsequent memory test. In Experiment 1 (N=172), we observed a trade-off: More offloading resulted in better immediate task performance but reduced memory accuracy in the (unexpected) memory test. In Experiment 2 (N=172), participants offloaded more when they were not aware of the memory test and subsequently showed a reduced memory accuracy than when they were aware of it. In Experiment 3 (N=172), we replicated this effect: Participants who were forced to maximally offload showed a reduced memory accuracy when they were not aware of the memory test. Interestingly, however, this detrimental effect was compensated when the participants were aware of it. Thus, our experiments highlight the importance of explicit intentions to form memory representations when relying on technical tools as offloading had detrimental effects on memory without such intentions.

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