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INDIVIDUAL DIFFERENCES IN EFFICIENT LEARNING: THE RELATIVE CONTRIBUTIONS OF ATTENTIONAL CONTROL AND WORKING MEMORY CAPACITY

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This study acquired new knowledge regarding the potential role of attentional control in generating individual differences in learning efficiency and longer-term retention. Learning efficiency is defined by the rate at which individuals learn information and their ability to remember it over time, and is measured using the Learning Efficiency Task (LET). While Zerr et al. have demonstrated the LET as a reliable measure of individual differences in memory, the mechanisms underlying these differences have yet to be fully understood. One explanation for disparity in learning efficiency, as investigated by the current study, is that differences in learning and memory result partially from an individual's ability to control their attention. Attentional control is defined as the use of attention to focus on information relevant to a particular goal, specifically in the face of distractions.

The present project directly compared performance on the LET to three computerized measures of attentional control (Antisaccade, Arrow-Flanker, Stroop) and working memory capacity (Operation Span, Reading Span, Symmetry Span) in a within-subjects design. A total of 81 healthy Washington University undergraduates (76% female) with an average age of 19.5 years ($SD = 1.4$) participated in the experiment. The data revealed that attentional control performance was weakly, but not significantly, correlated with learning efficiency performance. These results support the conclusion that attentional control is not a significant driver of individual differences in learning efficiency. Additionally, the variability of performance on the LET in a college-aged sample further demonstrated the utility of the LET as a measure of individual difference.