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**Generalizing screen inferiority – does the medium, screen versus paper, affect performance even with brief tasks?**

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Summary: Screen inferiority in performance and metacognitive processes has been repeatedly found with text learning. Common explanations for screen inferiority relate to technological and physiological disadvantages associated with extensive reading on screen. However, recent studies point to lesser recruitment of mental effort on screen than on paper. Learning tasks involving a heavy reading burden confound technological and physiological media differences with potential media effects on recruitment of mental effort. The present study focused on media effects on effort recruitment. We examined whether screen inferiority remains even with a brief task that nevertheless requires effort recruitment. In two experiments, participants faced three short math problems that require systematic processing to solve correctly. We examined media effect on solving these problems, and the potential of disturbed perceptual fluency (i.e., disfluent versus fluent fonts) to induce effort investment. Overall, there were no performance differences between the media. However, when collecting confidence ratings, disfluency improved performance on screen and hindered it on paper. Only on paper confidence ratings were sensitive to performance differences associated with fluency, and resolution was better with the disfluent font than with the fluent font. Correspondingly, another sample reported on their preference of media for solving the problems. They expressed a clear reluctance to working on screen despite the task being brief. This preference is suggestive of reliable meta-metacognitive judgments reflecting the general lower quality of metacognitive processes on screen. The findings call for considering medium and presentation format effects on metacognitive processing when designing computerized environments, even for brief tasks.

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*Keywords:* metacognitive monitoring; meta reasoning; human computer interaction; disfluency; problem solving

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