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Designing Interfaces that Stimulate Ideational Fluency in Science

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Abstract: This research investigated how the presence, basic features, and match of interface input capabilities to a task domain can either stimulate or impede thinking about science. Students' hypothesis generation in biology was compared while they used: (1) non-digital paper and pencil tools, (2) a digital paper and pen interface, (3) pen tablet interface, and (4) keyboard-based graphical tablet interface with a supplementary pen. Results showed that students expressed 44