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# Investigating Scientific Inquiry Skills from Process Data

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## Abstract

Process data recording students' interactions with digital assessment items are available in digital educational assessments and have become a focus of cognitive scientists to analyze inquiry skills during problem solving. This study examines the inquiry behaviors of using tools (i.e., resource tabs) in short response construction items from the 2019 National Assessment of Educational Progress science assessment. We visualized the occurrence times and durations of response construction behaviors and tool use behaviors and conducted correlation analyses and mixed-effects regressions between the count (and duration) of tool use behaviors and item scores. The results reveal that tool use behaviors are significantly associated with item scores and probabilities of finishing the whole block the problem; increasing tool use durations or counts increases the chances of getting higher scores, but it also increases the chances of not finishing the block. This study exemplifies how to use process data to investigate scientific inquiry skills.