The Science Assistments Project: Intelligent tutoring for scientific inquiry skills

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Abstract: Our learning environment Science Assistments (www.scienceassistments.org; NSF-DRL# 0733286; NSF-DGE# 0742503; NSF-DRL# 1008649; U.S. Dept of Ed.# R305A090170) scaffolds middle school students' scientific processes, namely, hypothesizing, design of experiments, data interpretation, warranting claims with evidence, and communicating findings for Physical Science, Life Science, and Earth Science. We extended the logging functionality of Math Assistments (www.assistments.org) to capture students' fine-grained actions within interactive microworlds. In addition, we developed inquiry tools to support students' inquiry. The logging functionality, inquiry tools, and data mining techniques provide the basis for adaptive scaffolding of students' inquiry in real time. By reacting in real time, we test whether and how can affect both students' science process skills, shown by more goal directed inquiry and more systematic experimentation measured through log files, and in turn, their content learning. We are testing our adaptive scaffolding in a series of randomized controlled studies in our partner schools.