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Exploring Restructuring and Aha! in the Context of Computer Programming

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Abstract

Lab-based research on insight has typically explored solutions on specially designed puzzles, but there is growing interest in exploring insight in more naturalistic contexts. Anecdotally computer programmers report experiences that sound similar to common insight phenomena such as Aha! and restructuring. To better understand moments of insight in computer programming, we conducted a protocol study where we asked intermediate-level computer-programming students to think-aloud as they solved three problems that required non-obvious solutions. Participants began their solutions on a whiteboard and then implemented their solutions in C++. This yielded several data sources including the trace data and the quality of their programmed solutions. This data was used to test whether and when programmers experienced Aha! or restructuring while solving these problems. This data was also used to test whether common findings in insight problem solving research such as the Aha-Accuracy effect and the theorized impasse-insight sequence are present when computer programming.