

Abstract Submitted
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Cognitive Work Analysis: Preliminary Data for a Model of Problem Solving Strategies MARK ROTHMAYER, JENNIFER BLUE, Miami University — Investigations into problem solving strategies are part of the field of physics education research where investigators seek to improve physics instruction by conducting basic research of problem solving abilities among students, differences in knowledge representations between experts and novices, and how to transfer knowledge structures more effectively onto novices. We developed a new conceptual research tool in our laboratory, where we could potentially map the step by step flow of problem solving strategies among experts and novices. This model is derived from the theory of Cognitive Work Analysis, which is grounded in ecological psychology, and as far as we know it has never been applied to a knowledge domain like physics. We collected survey data from 140 undergraduates enrolled in an algebra based introductory physics course at Miami University as part of a larger study aimed to test the validity of the model. Preliminary data will be presented and discussed.

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