

Abstract Submitted
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Investigating the Usability and Efficacy of Customizable Computer Coaches for Introductory Physics Problem Solving¹ BIJAYA ARYAL, University of Minnesota Rochester — We have studied the impacts of web-based Computer Coaches on educational outputs and outcomes. This presentation will describe the technical and conceptual framework related to the Coaches and discuss undergraduate students favorability of the Coaches. Moreover, its impacts on students physics problem solving performance and on their conceptual understanding of physics will be reported. We used a qualitative research technique to collect and analyze interview data from 19 undergraduate students who used the Coaches in the interview setting. The empirical results show that the favorability and efficacy of the Computer Coaches differ considerably across students of different educational backgrounds, preparation levels, attitudes and epistemologies about physics learning. The interview data shows that female students tend to have more favorability supporting the use of the Coach. Likewise, our assessment suggests that female students seem to benefit more from the Coaches in their problem solving performance and in conceptual learning of physics. Finally, the analysis finds evidence that the Coach has potential for increasing efficiency in usage and for improving students educational outputs and outcomes under its customized usage.

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