Technology & Model-Based Conceptual Assessment: Research in Students' Applications of Models in Physics & Mathematics

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Summary of Merit Review and Recommendation

***Note to Reader:** This statement has been prepared by staff of the National Science Foundation in order to provide an illustration of the proposal review process and the award recommendation. While it draws on actual points made by the proposal reviewers, review panelists, and program officer, it is a synopsis and synthesis of the actual reviews and award decision. We recognize that all proposals and reviews have strengths and weaknesses. We therefore offer this only as an example of a "typical" set of points made for a funded proposal, and we hope this serves to illuminate the process and to provide helpful guidance to prospective investigators.*

The reviewers noted that the project goal was worthwhile—an ongoing formative assessment that will guide instruction. They felt there were two main strengths of the proposal: to provide assessment alternatives that are cognitively based rather than the traditional assessments, which simply tend to rank students, and to encourage instructors to pay attention to the models of the physical world held by their students. The proposed work plans to solve the problem of information-deficient and non-timely assessments by bringing technology and cognitive analyses to bear on the problem.

The panel raised concerns about the longer-term adoption and sustainability of this approach at the undergraduate level. This concern was communicated to the proposer and was adequately addressed by closer attention to teacher involvement and greater use of the Web for teacher support. If this research area were to mature and become a candidate for IERI funding, the attempts at "scaling" in this proposal could be examined.

The panel recommended this proposal and the program officer concurred with the panel recommendation.