

Session FE: Panel: PER and Student Motivation: Beyond Single Course Content

Location: Sage Room **Sponsor:** Committee on Research in Physics Education **Time:** 6:30–8:30 p.m. **Date:** Monday, Jan. 14
Presider: Gary White

FE03: 6:30-8:30 p.m. Motivation of Physics Students' Self-checking Behavior*

Panel – David E. Meltzer, Arizona State University, Mesa, AZ

Dakota H. King, Arizona State University

For an investigation into physics students' mathematical difficulties, we have administered written diagnostic tests to over 3000 students. Students' responses to elementary questions on trigonometry, algebra, and graphing reflected a large number of operational errors, to a degree that could significantly interfere with success in an introductory physics course. However, individual problem-solving interviews with students revealed that, when simply asked to explain their solutions to the problems, students would very frequently discover and correct a large proportion of their errors with no additional input from the interviewer. Consequently, we propose that integrating multiple "self-checking" steps into guided quantitative problem-solving exercises may help habituate students to perform simple checks that could significantly impact their problem-solving success.

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