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Measurement of Faculty's Fidelity of Implementation of Peer Instruction following an Intensive Professional Development Workshop

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Abstract for DBER Group Discussion on 2015-10-22

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Title:

Measurement of Faculty's Fidelity of Implementation of Peer Instruction following an Intensive Professional Development Workshop

Abstract:

Peer Instruction is an evidence-based instructional strategy that has been empirically shown to improve students' learning and attitude in a variety of STEM disciplines. Peer Instruction involves students individually voting on a multiple choice question using a clicker or flashcards. If the majority of students answer incorrectly, students engage in peer discussion and vote again, which is followed by instructor explanation. Research investigating faculty's implementation of evidence-based instructional strategies indicates that faculty often adapt practices as opposed to adopting them fully. Unfortunately, low fidelity of implementation often reduces the efficacy of an instructional strategy. Physics education researchers have previously demonstrated that knowledgeable Peer Instruction users routinely adapt this strategy, most notably by skipping the individual vote, which could compromise the positive student outcomes associated with this technique. In this study, we investigate the fidelity of implementation of Peer Instruction by STEM faculty who participated in a semester-long professional development workshop focused on the research supporting and the implementation of Peer Instruction. Video recordings of STEM faculty were collected before and after participation in our workshop. Based on a recent literature review on Peer Instruction, we identified the components of this method that are critical for fidelity of implementation. We then analyzed each clicker question asked during these video recordings using an adapted version of a rubric developed by Turpen and Finkelstein. We report common implementation strategies and variations of use during Peer Instruction exhibited by the STEM faculty who participated in the professional development program.