

Abstract Submitted  
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**In-class use of clickers and clicker tests improve learning and enable instant feedback and retests via automated grading** SNEHALATA KADAM, NANCY BURNHAM, Worcester Polytechnic Institute, ERIN DESILVA, Dratmouth College — An audience response system (“clickers”) was gradually incorporated into introductory physics courses at Worcester Polytechnic Institute during the years 2011-14. Clickers were used in lectures, as a means of preparing for labs, and for collection of exam data and grading. Average student grades were 13.5% greater, as measured by comparing exam results with a previous year. Student acceptance of clickers was high, ranging from 66% to 95%, and grading time for exams was markedly reduced, from a full day to a few hours for approximately 150 students. The streamlined grading allowed for a second test on the same material for the students who failed the first one. These improvements have the immediate effects of engagement, learning, and efficiency, and ideally, they will also provide an environment in which more students will succeed in college and their careers.

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