

**University of Michigan
Provost's Teaching
Innovation Prize**

2012 WINNER



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Professors McKay, Gerdes, and Evrard are accepting this award on behalf of the team: E²Coach tailoring designer Kate Miller and technical lead Jared Tritz.

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Better Than Expected: Using Tailored Communication to Optimize Learning

Innovation Description

E²Coach takes the form of a highly personalized website that delivers complex feedback and encouragement. Advice is tailored to the student's background, current standing, and progress over the course of the semester, and is also sensitive to the student's ambitions and identity (elicited by survey at the course's outset).

Final grades can be predicted quite well for students embarking upon introductory physics courses due to a 2008 learning analytics project with data on nearly 50,000 U-M students. Of course, some students do better than expected, others worse. Knowing what leads to better- and worse-than-expected outcomes makes it possible, in principle, to individually coach every student toward better-than-expected performance.

Interviews in 2011 with students who received higher- or lower-than-predicted final grades revealed differences in the ways they used physics course resources, responded to challenges, and worked with other students. Further content for tailored communications came from a survey of 78 physics study group leaders. Psychology faculty consultants provided guidance regarding stereotype threat, values affirmation, and the presentation of quantitative feedback to students.

The E²Coach intervention engine is a step toward a future in which rich information about students and their progress through the university is used to optimize their learning.

Comments

"E²Coach allows [faculty] to say to every student in the class what we would say if we could sit down with each."

"I really like how it predicts my final grade for the class. Seeing this is really motivational and helps me get down to studying."

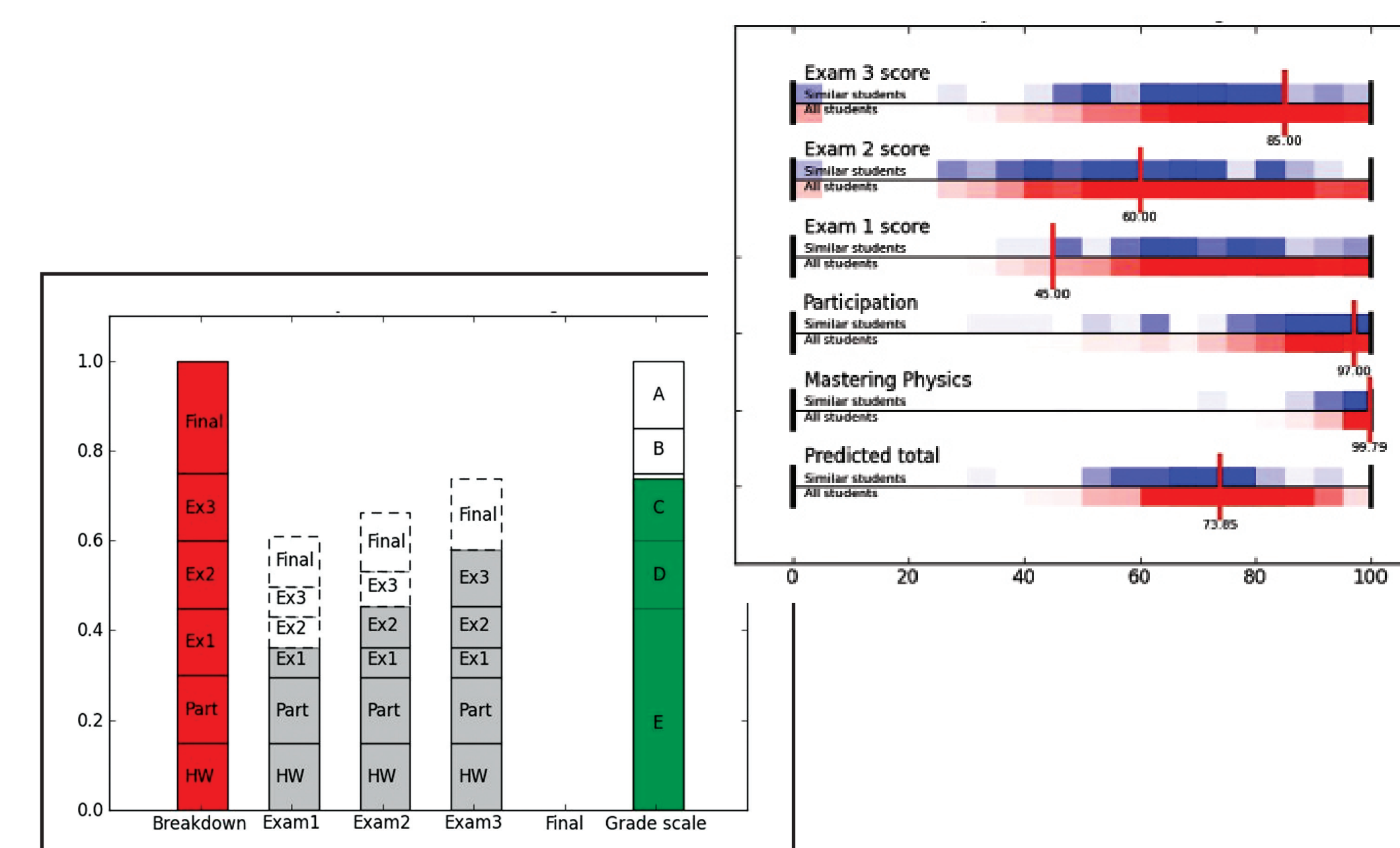
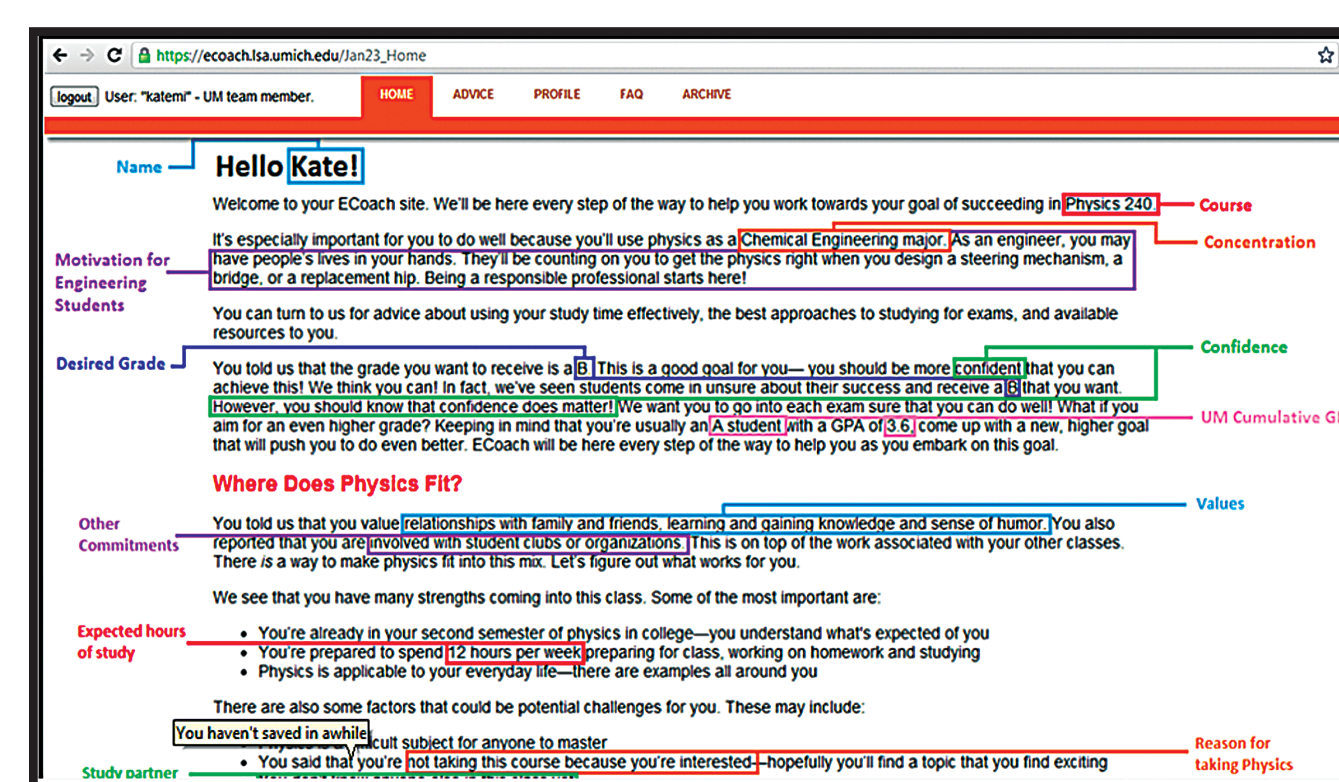
"I usually read through all of the advice every time I get a notification, and especially before and after exams."

"It's motivating to see how successful students in the past approached the course."

"One of the most helpful things I got from E²Coach was that you should work and rework problems and make sure you really understand."

"The development of the E²Coach innovation has been especially valuable for me as I prepare to become a secondary physics teacher. I look forward to adapting the expert advice I've gathered at the collegiate level to my high school classroom where I can personally deliver tailored advice to the students who need it most."

Examples of Teaching Innovation



E²Coach uses the Michigan Tailoring System (MTS), a mature open-source communications package developed by the U-M Center for Health Communications.

Status updates show substantial effort and dramatically improved performance of a PHYSICS 140 student between first and third exams.



E²Coach is featured in this report as a promising approach for providing tailored access to computerized resources, as well as an informed connection to instructors, advisors, and academic support staff.