Exploring the Effect of Student Confusion in Massive Open Online Courses

Diyi Yang♣, Robert Kraut♢ and Carolyn P. Rosé♣
♣Language Technologies Institute, ♢Human-Computer Interaction Institute
Carnegie Mellon University. 5000 Forbes Ave, Pittsburgh, PA, 15213
{diyiy, kraut, cprose}@cs.cmu.edu

ABSTRACT

Although thousands of students enroll in Massive Open Online Courses (MOOCs) for learning and self-improvement, many get confused, harming learning and increasing dropout rates. In this paper, we quantify these effects in two large MOOCs. We first describe how we automatically estimate students' confusion by looking at their behavior clicking on course content and participating in the course discussion forums. We then apply survival analysis to quantify the impact of confusion on students' dropout. The results demonstrate that the more confusion students express themselves and the more they are exposed to other students' confusion, the sooner they drop out of the course. We also explore the effects of confusion expressed in different contexts and related to different aspects of courses. We conclude with implications for the design of interventions to improve student retention in MOOCs.