Qualitative Analysis of college students' perception of multiple representations and modalities in courses

K. Vawani
UIUC

Z. Zhang
UIUC

L. Angrave
UIUC

H. Liu
UIUC

J. R. Amos*
UIUC
jamos@illinois.edu

Among all college students, students with disabilities are particularly at risk due to a high percentage of underreporting. We conducted a survey across several large courses in engineering and computing at the University of Illinois at Urbana-Champaign to identify course components that engage students with and without disabilities. The survey collected students' disability status, demographics information, and their usability and satisfaction with more than ten types of course modalities including live Zoom lectures, recordings of lectures, small group discussion, instructor notes, transcripts of lectures, discussion boards etc. The study spans 7 different departments with a total enrollment of 1800 students and had 220 respondents. The survey was followed by semi-structured interviews for selected students to delve deeper into reasons behind the quantitative information. We were motivated to identify course improvements for all students but also greater equity for students with disability. For the semi-structured interviews, we recruited a diverse group of 19 students out of the 220 students who took the survey. The 9 students who participated in the interview included students with disability (5 students) and students without disability (4 students) with diversity in gender (4 Male, 2 Female, 3 Non-Binary) and race (3 Mixed race, 4 White, 2 Asian).The semi-structured interviews focused on identifying what students liked and disliked about various modalities and representations and whether having multiple modalities and representations influenced their study habits and motivation to study. Preliminary results show that students with disabilities prefer live interactions in small groups, recorded lectures, and instructor notes/slides that they can engage with offline, while students without disabilities prefer the live lecture and textbook readings. Through the interviews, we found that few students feel that having multiple representations can cause them to procrastinate the learning and reduce the motivation to study but many students prefer having multiple means of representations as it helps them develop positive attitude towards the courses and makes studying less daunting. These results demonstrate the importance of multiple resources, supporting Universal Design Principles.