Design and Engineering of a User-Centric Information System to Streamline Communication between Students and Their Teachers

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Online communication between students and teachers is irregular and inefficient. Teachers have begun to use the web to post homework, and various pieces of information about their classes, however the tools they have available are very limited. Last year it was determined that a streamlined, user-centric student UI (user interface) can make this path of communication over 20x faster (5% of students' previous time spent) than traditional teacher websites. This very substantial improvement comes from bringing all of the information (from each of their classes) to students, rather than having them visit each of their teachers' websites. This system has gone through three different iterations of design and engineering. The first prototype was developed in plain PHP, while the second and third were developed in Drupal (an open-source content management framework [CMF]). After re-creating the prototype in Drupal, over 100 students were tasked with finding certain information within the site in a simulated testing of the system. The site tracked the location of their cursors every 50 milliseconds, then used this data to compile heatmaps of users' interactions with the UI. These heatmaps revealed users' common paths throughout pages, which were then used to re-design the UI around users' most frequent movements. This fully engineered information system revolves around the concept of user-centric design and understanding the unique perspective of each type of user. While it currently holds limited functionality, relative to its potential, this prototype serves its purpose in demonstrating its possible impact on student-teacher communication.

Awards Won: