Exploring Educational Tool Usage at UW-Madison's College of Letters & Science: An Interactive Data Analysis Dashboard

An overview of LMS and LTI tool usage patterns in Canvas

Audience

The Learning Analytics Center of Excellence (LACE) is a dynamic team of professionals who leverage teaching and learning data to improve educational practices across the University of Wisconsin-Madison. By partnering with LACE, we are supporting their data-driven initiatives by identifying aggregate clicks on Canvas Learning Management System (LMS) and integrated (LTI) tools in the College of Letters & Science (L&S).

Problem

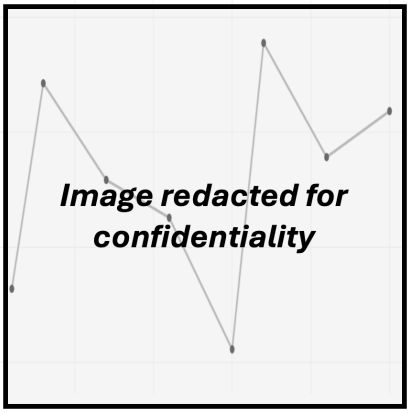
Although interactive course dashboards across UW-Madison exist, few leverage aggregated click data to visualize educational technology usage at the disciplinary (STEM vs Non-STEM) and department levels. We addressed this by conducting an exploratory data analysis (EDA) and creating an interactive dashboard that explores tool usage patterns of LMS and LTI tools within the College of L&S.

Impact

An interactive dashboard showcasing tool usage patterns can inform practical decision-making about the continued use, improvement, or replacement of educational tools. It also serves as a template to characterize LMS and LTI tool usage for the College of L&S and across UW-Madison's campus units. LACE, the Vice Provost for Teaching and Learning, and other faculty can leverage insights from this dashboard to answer questions related to tool usage based on pedagogical intent, course size, disciplines (STEM versus Non-STEM) and each of the four College of L&S departments.

Methods

Data collected from Unizin included click summaries of educational tools in the College of L&S courses during the Fall 2022 semester. Click summaries captured tool usage patterns for all users of Canvas courses including students, professors, instructional designers, and more across the term, including repeated clicks. Using Tableau, an analytics platform that visualizes exploratory data results, we created an interactive dashboard to showcase LMS and LTI tool click summaries in the College of L&S at the discipline, department, and course levels.



Findings to Date

In the figure provided, both disciplines show different LTI tool usage and levels of usage with those tools. For example, tools like Cengage and Pearson MyLab had higher click summaries in STEM courses, whereas Perusall and Pearson Socket had more click summaries in Non-STEM courses, and several tools were hardly used at all.

Impact Revisited

Stakeholders can use this interactive dashboard to make informed decisions about which educational tools to use in their courses and to engage in broader discussions about the role of technology in education. Furthermore, they can use these findings to advocate for additional resources for technology initiatives and implement interventions to improve tool usage. Non-STEM courses, for example, contained more aggregate clicks on Perusall, a collaborative reading tool. Instructional designers creating discussion-based courses or reading assignments might consider investigating its effectiveness. Pearson Socket, another tool with a high average of aggregate clicks, is an error page that users are sometimes brought to after clicking on a link in Canvas. Dashboard users could drill down on this LTI tool to identify which courses this error affected. This finding could inspire additional training on embedding Pearson links in Canvas.