UW Faculty and Student Interest in Learning Analytics and Personalized Notifications

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Introduction

The EDUCAUSE Center for Analysis and Research (ECAR) conducts an annual survey that examines the technology experiences of undergraduates and faculty. The 2014 ECAR survey included a series of questions that explored UW faculty and student interest in learning analytics. Learning analytics platforms provide real-time dashboards that notify instructors and advisors about poor student performance, allowing for targeted interventions. Additionally, the survey assessed student opinions on receiving personalized notifications that provide degree planning guidance and information on academic resources, such as tutoring.

Overall, findings suggest that faculty and students seek greater access to learning analytics and other types of notifications. Interest in personalized notifications has increased considerably in the past year among students. UW students view notifications as a way to manage coursework and improve overall performance through targeted interventions and goal management. UW faculty recognize the instructional benefits that learning analytics offer by enabling the management and tracking of student progress. In light of these findings, *we recommend that UW-IT explore opportunities to provide learning analytics and personalized notifications to faculty and students in order to improve student progress, outcomes and retention*.

Findings

A total of 688 UW students and 585 UW faculty took part in the 2014 ECAR survey. Faculty and student interest in learning analytics and personalized notifications was assessed using a five-point interest scale (Table 1).

Personalized notifications: Improving degree planning/progress

Course recommendations. Students want personalized course recommendations based on their previous course selections and degree requirements. In 2013, 72% of UW students expressed interest[1] in receiving recommendations for other courses, with only 21.3% of those students indicating they were very or extremely interested. By 2014, the average interest rating for this service increased from 3.1 to 3.8 , and 86.9% of UW students indicated they were interested in this service (p-

Table 1. ECAR interest scale	
1	Not interested at all
2	Not very interested
3	Moderately interested
4	Very interested
5	Extremely interested

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[1] The term "interest" includes the following survey responses: "moderately interested," "very interested," and "extremely interested."

value <0.001). Over half of these respondents reported being very or extremely interested (Figure 1).

UW students reported greater interest in this service than faculty (Figure 2).

Degree progress and planning. Of those surveyed, 89.3% expressed interest in personalized notifications about degree progress (average interest rating=3.8, Figure 1). Students believed that these "real time updates [and] reminders on the classes required to… enter [or] complete a major" will assist them in identifying different courses that fit their interests and fulfill degree requirements. In addition to updates about degree progress and course recommendations, students wanted to better understand how the courses they take fit together in a meaningful way. Some UW students sought a tool that will help close "the gap between why a student is taking a course and how it fits into their bigger academic plan."

Personalized notifications: Improving academic success

Student performance. A majority of UW faculty surveyed (70%) expressed interest in receiving a notification if a student's progress in a course was declining (average interest rating=3.0, Figure 2). Likewise, 76.1% of UW students wanted to be notified if their academic performance was declining (average interest rating=3.3, Figure 1). But students wanted more than just a notification of potential failure in a course. ECAR student write-in responses indicated that students wanted to be notified if their academic performance fell below a target grade that they themselves determined.

Real-time feedback on progress and learning experience. Over 83% of UW students expressed interest in personalized visualizations and dashboards that provide them with real-time feedback about their progress in a course or learning experience (average interest rating=3.6, Figure 1). When asked what other types of notifications they consider most useful to improving their academic performance, students expressed interest in dashboards that display real-time notifications about upcoming due dates, exams, and other course-related scheduling items. Some suggestions included the option to receive customizable "real time updates [and] reminders" about course performance and posted feedback.

Academic resources. In 2013, 33.7% of UW students reported being interested in receiving information about new or different academic resources, including information on tutoring or other skill building opportunities related to their field of study (average interest rating=3.2, Figure 1). By 2014, this number increased significantly to 47.6% (average interest rating=3.5; p-value <0.001). Students specifically expressed interest in receiving notifications about lectures/talks and Center for Learning and Undergraduate Enrichment (CLUE) sessions related to their degree. In the 2014 survey, 83.3% of UW faculty said they were interested in receiving suggestions for new or different academic resources for their students (average interest rating=3.5, Figure 2); this was the highest ranked item among faculty.

Progress relative to classmates. Over 85% of UW students were interested in receiving notifications about their academic performance relative to their peers (average interest rating=3.7, Figure 1). One student expressed interest in knowing comparative performance at the assignment level. Others wanted

to know the course average or were interested in referring to course averages of other students in their major or the averages of those who had taken the course in the past. Students said they would use this type of information to gauge the difficulty of the material, identify why they were struggling, proactively adjust their approach to the material, and predict their academic performance.

Suggestions for improvement in course progress. Over 85% of UW students said they would like to receive suggestions on how to improve their academic performance (average interest rating =3.7, Figure 1). Faculty were less interested in this student-centered service (average interest rating=3.0, Figure 2). Just over 85% of UW students reported a desire for personalized quizzes and practice questions that allow them to address areas of weakness (average interest rating=3.7, Figure 1). One student added that "personalized tests would be beneficial compared to standardized ones" for practice problems. Students felt these instruments would indicate where students should focus, and communicate areas of need to instructors.

Automated attendance tracking. Neither UW students nor faculty were interested in automated attendance tracking. Only 25.1% of students and 20.3% of faculty desired this service. Automated attendance tracking was the lowest ranking item for both populations, with average student interest in this service rated at 2.6 and faculty falling short of this at 2.3 (Figures 1 and 2). One student said "money would be much better spent" addressing other types of notification systems, including information about academic performance.
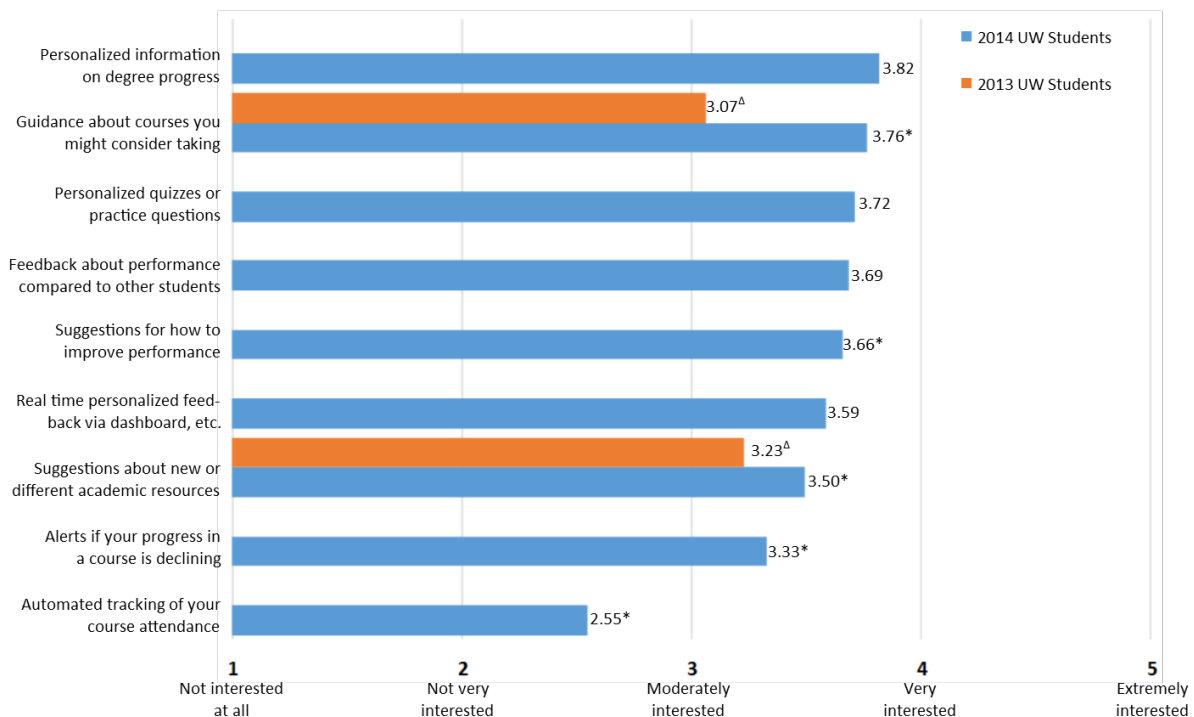

Figure 1: Average interest ratings for various personalized notifications among UW students in 2013 and 2014. Only two survey items on notifications were included in the 2013 survey. *Indicates survey item that both students and faculty were asked in 2014. $^\Delta$Indicates that these were the only questions pertaining to personalized alerts and notifications that were asked in the 2013 ECAR survey, relevant to this report.
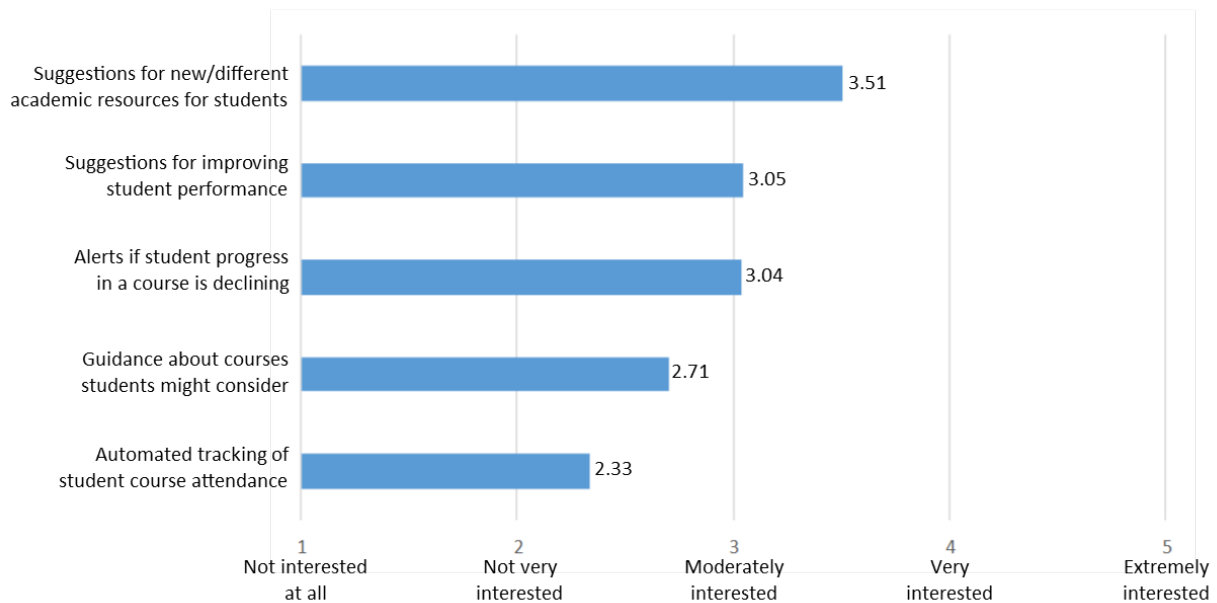
Figure 2: Average interest ratings for various personalized notifications, among UW faculty in 2014.

Recommendations

When asked to reflect on whether the UW uses analytics to support critical institutional outcomes, UW faculty reported greater uncertainty about whether analytics are being used in this way than did faculty at peer institutions (40.2% UW faculty versus 30.0% faculty at peer institutions, p-value=0.007). At the same time, faculty and students at UW expressed interest in utilizing analytics that have the potential to support important institutional goals, such as improving student retention and reducing time to graduation. Faculty and student interest in notification systems that can positively impact the student experience while supporting institutional goals provides a unique opportunity for UW-IT. UW-IT is currently making strides to provide students with personalized content via MyUW and academic planning tools via MyPlan, however there is ample room for growth in this area. Given the findings of this report, which echo sentiments expressed in other UW-IT user research projects, we make the following recommendations.

Provide students and faculty with up-to-the-minute notifications about academic performance. UW-IT should evaluate learning analytics platforms that make personalized information readily accessible and useful. The learning analytics platform should have the following features:
- Notifications to faculty when student progress indicates potential failure
- The ability for students to set target grades and receive notification when they fall below this threshold
- The ability for students to view their academic performance in relation to their classmates.

Provide students with personalized notifications about relevant academic resources. Information about course and subject-specific CLUE sessions is accessible through the Academic Support Programs Web site. However, UW-IT can improve the information-to-student connection by linking these scheduling services with existing systems, like Canvas or MyUW. Other personalized information about academic events and resources could be integrated in a similar manner. Specifically, students are looking for software that provides information relevant to their majors, course schedule, and expressed interests, targeting:

- CLUE sessions and other tutoring sessions
- Subject-specific lectures and seminars
- Reminders about upcoming deadlines for coursework.

Provide personalized course recommendations and information on degree progress to students. Student responses revealed substantial interest in receiving personalized information about different courses that may be of interest to the individual student. Specifically, students are looking for a system that provides course recommendations based on:

- Expressed interests
- Previous courses taken
- Degree requirements
- What other students in their degree program have taken.

Work currently undertaken by UW-IT will address some of these needs. UW Academic Explorer (UWAE), a new application in development, will provide students with a list of courses commonly taken by other students in their degree program. In addition, UWAE will enable students to find relevant degrees based on a course or area of interest, and to clearly view unmet degree requirements and corresponding courses.

Make notifications mobile-device friendly. Students want to receive personalized notifications on their handheld mobile devices. Given current growth trends in mobile device ownership and academic use of these devices, evident in the same ECAR survey, UW-IT should consider expanding or enhancing the notification services that Notify.UW and MyUW offer, or consider an alternative notification software that is compatible with mobile devices.