Student & Instructor Success Analytics Objectives and Strategy
AY 2020-21

Student and Instructor Success Analytics is a program in UW-IT's Academic Experience Design & Delivery (AXDD) unit. Its mission is to improve the student and instructor experience through online tools and analytics powered by cutting-edge data science. Each year, we recount the past year's accomplishments and discuss our objectives for the upcoming year.

Executive summary

During the 2019-20 academic year, AXDD made significant strides towards meeting our three key objectives. We built strong partnerships across the three UW campuses and beyond (Objective 1), which, in turn, enabled us to more effectively deliver new tools and data science for improving student success (Objective 2). We have also made progress in developing the infrastructure needed to support our analytics program and have reprioritized our efforts to accommodate AY 20-21's objectives. Building on the successes of this past year, our objectives for AY 20-21 are: (1) to provide learner data and predictive analytics to improve student success among students in OMA&D's academic programs, underrepresented STEM students, and other vulnerable students, (2) to improve and Integrate our current products and prototypes, (3) to invest in our analytics infrastructure, and (4) to support online teaching and learning with data science and analyses.

Reflecting on our AY 2019-20 Objectives

Our first objective of AY 19-20 aimed to **build partnerships across UW's three campuses and beyond**. This past year AXDD spearheaded a productive tri-campus student success quarterly meeting, engaged in valuable knowledge sharing with three peer institutions (U of Michigan, Penn State, and U of Minnesota), and initiated collaborations with analytics teams at Panopto and Instructure. At UW Seattle, we have developed strong partnerships with the Office of the University Registrar (OUR), the Office of Minority Affairs & Diversity (OMA&D), Student Life, and the Office of the Provost through regular meetings and collaborative student success efforts. These partnerships have been crucial in supporting our second objective, discussed below.

Our second objective was to **deliver new tools and data science for improving student success**. In 2019, we launched Prereq Map, prototyped and piloted Beaten Paths with advisers, and began prototyping early-warning features for OMA&D. Demonstrating our ability to deliver predictive analytics was also a key element of our second objective. Fueled in part by an Amazon Catalyst Grant, we have developed a predictive model to identify students who are at risk of leaving the UW. Finally, we have delivered several insightful data science reports to our campus partners that have informed online teaching and learning strategy at UW.

Our third goal was to **begin developing dashboards from an in-house Learning Records Store (LRS)**. A re-prioritization of our LRS use cases shifted our focus from dashboard development to enabling data science efforts for supporting student retention initiatives. Our AY 2020-21 objective has subsequently been recalibrated to address this reprioritization.

Objectives, AY 2020-21

1. Develop and Deliver Predictive Analytics to Improve Student Success Among Educational Opportunity Students and Underrepresented STEM students

Enable OMA&D advisers to discover struggling students

In 2019, AXDD and OMA&D began a partnership that aimed to increase student retention in several academic programs within OMA&D. Powered by our predictive models and online learner data, we will begin a pilot of an early-warning dashboard for OMA&D in autumn 2020. As a part of this pilot, we will conduct research to understand how the early-warning features have changed advisers' existing workflows and identify new workflows that have developed as a result of these new features. The pilot will also evaluate the efficacy of the dashboard's data in discovering students who are struggling. In addition to the pilot, we will continue to better integrate the dashboard with Compass, OMA&D's advising dashboard, while scoping out the work for a rebuild of Compass.

Partner with Engineering and other STEM programs

In order to support all underrepresented STEM students across their academic journey, we aim to partner with STEM programs to learn about existing retention efforts, demo the tools we are providing OMA&D, and determine if there is a potential for collaboration. By the end of AY 2020-21 we aim to have a plan in place to support retention efforts in STEM programs, if feasible.

2. Improve and Integrate our Current Products and Prototypes

Help students discover courses and majors

AXDD will conduct research that seeks to discover the needs, goals, and workflows of first-year students who are undecided about their major, with a focus on students supported by OMA&D. A survey will be distributed to students during the spring quarter and the data will be analyzed over the summer.

Improve Prereq Map to better serve the academic planning needs of UW students

We plan to enrich Prereq Map with insights from prototypes AXDD developed in support of the Retention Task Force. User research will be conducted to help us best surface these insights to support the academic planning workflows of students. A wireframe will be completed by the end of AY 20-21.

3. Develop and Refine the Infrastructure Needed to Drive Our Analytics Engine

We are currently in the process of developing a Learning Records Store (LRS) that will collect fine-grained learner data from various online tools (e.g., Canvas). We have designed a reference architecture with several peer universities and industry partners and have made progress on the initial phases of LRS development. The objective for this year is to have the infrastructure in place to feed the analytics engine for our student success applications and predictive models.

4. Support Online Instruction with Contemporary Data Science Approaches

We will continue to analyze and report on course evaluation, survey, and additional data sources to provide insight into student and instructor experiences with online learning.