



TOPIC: Efficiency and Effectiveness (E&E 2.0), Analytics, and Student Success

COMMITTEE: Education Policy and Student Life

DATE OF COMMITTEE MEETING: September 22, 2015

SUMMARY: E&E 2.0 begins a new phase of examining ways our campuses can be more effective and efficient, with a primary focus on how improved access to and analyses of data from academic and student services sources might inform our student success initiatives.

This brief report is EPSL’s introduction to the concepts and general plans for this academic year and provides a starting point for campuses as we engage in this more systematic and comprehensive approach to enhancing student success. In addition to the presentation of a few examples and an implementation plan during the meeting, we will provide EPSL with an overview of some of the challenges we anticipate both in the implementation of these tools and the change management required to fully incorporate data analytics in campus decision making. We will also cover the strategies we have planned to address these challenges.

ALTERNATIVE(S): This is an information item only.

FISCAL IMPACT: This is an information item only.

CHANCELLOR’S RECOMMENDATION: This is an information item only.

COMMITTEE RECOMMENDATION: Information Only **DATE:** September 22, 2015

BOARD ACTION: **DATE:**

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Effectiveness and Efficiency 2.0

A Starting Point for Academic E&E

E&E 2.0 begins a new phase of examining ways our campuses can be more effective and efficient, with a primary focus on how improved access to and analyses of data from academic and student services sources might inform our student success initiatives. Gathering data from disparate sources, providing analytics frameworks, and then analyzing the data in ways that will be useful in decision-making will be new challenges for our campuses. Nonetheless, these data and their use will be critical to our focus on enhancing student success, allowing the USM to identify opportunities where we can both increase retention/completion while also reduce the high costs often associated with interventions aimed at increasing the academic success of our students.

To begin the system-wide discussion, USM has contracted the services of a non-profit organization called the Predictive Analytics Reporting (PAR) Framework. Work will begin this Fall to use PAR's Student Success Matrix (SSMx) to engage all of the institutions in the analysis of their Closing the Achievement Gap initiatives as a collective project led by the Kirwan Center for Academic Innovation in collaboration with the Academic Transformation Advisory Council (ATAC). Additionally, PAR will be working with 5 of our campuses as "full" members who will have complete access to the suite of tools PAR provides for collecting and analyzing data student level data in order to explore a variety of questions around retention and college completion.

Background

For several years, the USM has held itself and its campuses accountable on many critical institution-level student success measures. The dashboard indicators available on the USM's website and the annual report synthesize the information from many institutional reports and data sources. The result is a single, retrospective snapshot of the indicators we track in order to provide some insight into our progress on several variables including:

- 2nd year retention rates
- 6-year graduation rates
- time to degree
- institutional financial aid (% receiving financial aid)
- Maryland Community College transfers
- student-to-faculty ratios
- STEM enrollment
- faculty workload (number of courses per FTE faculty)
- diversity statistics

In addition, the USM creates several additional reports each year on important measures including the achievement gap, faculty activities (beyond number of courses taught), diversity programming, financial aid, and enrollment data.

At the course level, we have been similarly engaged for some time in monitoring and improving teaching and learning through the USM's 8-year course redesign initiatives.

Since 2006, 57 USM courses were redesigned enrolling over 143,000 students. Based on the 7% net decrease in DFW (drop, failure, withdrawal) rates achieved through the initiative, a cumulative 10,500 students passed who might not have otherwise passed had the course not been redesigned. In addition, the redesigns have allowed institutions to reallocate almost \$5.8M in cumulative instructional costs over this period. The creation of the USM's Kirwan Center for Academic Innovation has given us the capacity to begin tracking and synthesizing these sorts of course-level effectiveness and efficiency indicators in addition to our institution-level indicators.

By making year-to-year comparisons using these institution- and course-level data, improvements and points of concern can be monitored. But these statistics and summary data do not provide insights into the specific relationships and interactions among programming, activities, interventions, and barriers that can be correlated with --if not found causally related to-- student success. For example, rather than calculating 2nd-year retention rates each year *after* the students have already left the institution, what if we could identify the specific points in time at which students drop out? What if we additionally collected information on these students' reasons for leaving and then developed interventions or support systems that directly addressed the problems of various types of students?

While it is true that colleges and universities have been compiling numbers and generating reports for decades, the new kinds and volume of information means that rather than merely reporting, we can utilize the data in planning and decision making. Leading university systems are using these *predictive analytics* to understand what drives both their institutional performance as well as their students' success, as is increasingly expected by the public and funders. So, rather than looking in the rear-view mirror in order to describe what happened in the past to the students who left our institutions between the 1st and 2nd years, what if, instead, we could pull together all of the data we have on our students over time and use that information to help us track and even begin to *predict* which students are likely to leave... *before* they go? What might having that information make possible in terms of targeted interventions aimed specifically at addressing individual student needs at precisely the right times?

The reality of "big data" is upon us, and the technological tools available to measure many variables in real time are becoming increasingly sophisticated, making the integration of data analytics a necessary part of our business and academic models in order to retain students and accomplish more with fewer resources. The analysis of data is quickly becoming a powerful tool for identifying the factors that lead to student success (or failure) and providing critical insights into the development of effective and efficient interventions that can alter student outcomes.

Types of Analytics and Examples Across the USM

Analytics is the use of information to gain insights into complex issues and make data-driven decisions about how to address them successfully. In higher education, *institutional analytics* is a relatively new term being used to describe the analysis of data to help monitor institutional success on key goals as described above, such as college completion

or expanded capacity in STEM. UMUC uses institutional analytics, for example, to track –in real time– the increases in student inquiries in response to various advertising campaigns. Within that larger view, *learner analytics* and *learning analytics* are more specifically concerned with student success and refer to “the measurement, collection, analysis and reporting of data about learners and their contexts, for purposes of understanding and optimizing learning and the environments in which it occurs” (Society for Learning Analytics Research, www.solarresearch.org).

Learner analytics is the term used to define analytics that predict which learners may have difficulty persisting in college and identify the interventions best able support those at risk. For example, University of Baltimore, Salisbury, and Towson are beginning to use learner analytics to help match student characteristics to majors and career paths, increasing the likelihood students will remain engaged and complete their degrees.

Learning analytics is the term used for data analyses that help faculty and students understand what teaching methods, academic interventions, and learning strategies are most likely to enhance learning of particular content and, even more specifically, with which students. For example, UMBC uses data collected from their Blackboard learning management system to provide students with de-identified information about how their more successful classmates are interacting with the instructional materials, suggesting ways to improve study habits within the specific context of the course.

Analytics programs curate and evaluate large data sets created by the “bread crumbs” students leave as they interact with various campus computing systems. The type of data gathered and the breadth of the implementation varies by institution and by application, but the major vendors currently involved in providing analytics services to education run the gamut from fairly targeted approaches like BlackBoard Analytics (tracks students’ progress within the learning management system) and Starfish Retention Solutions (advisement and admissions tools) to full-scale predictive analytics frameworks like PAR (Predictive Analytics Reporting) and Civitas Learning. Other vendors, such as EAB and Noel-Levitz, provide a range of student success analytics as well as consulting services.

Both learner and learning analytics programs can be “faculty/staff facing,” “student facing,” or both, meaning that the analyses are made available to faculty/staff and/or to students via easy-to-interpret online *analytics dashboards*. These dashboards often also include interactive tools that allow one to manipulate variables in order to see how the outcomes change; such as how dropping a course might affect a student’s time-to-completion.

One important key in determining exactly who should be seeing these data and using this information to inform decision making, however, is in knowing how to ask the right questions and which metrics are best used to answer them. This will involve more than simply putting the tools in place and working out the algorithms for analysis. Gathering data from disparate sources, providing analytics frameworks, and then analyzing the data in ways that will be useful in decision-making will be new challenges for our campuses. Nonetheless, these data analytics and their use will be critical to our focus on enhancing student success, allowing the USM to identify opportunities where we can both increase

retention/completion while also reduce the high costs often associated with interventions aimed at increasing the academic success of our students. Without these analyses we are just guessing at what is and is not working.

Our Action Plan

Over the summer, we engaged campus leadership, including presidents, provosts and others, in a discussion of general expectations and sharing of a few examples of success. During those discussions, we learned that many of our institutions are already engaged in some form of analytics work and, as a group, they are taking a variety of approaches using many different tools. These tools draw from a variety of data sources available at our institutions in order to alert students of approaching or missed deadlines, catch students who may be at risk in a particularly difficult course, or find students who may have dropped off the grid because of a fine or financial aid problem. Our campuses are currently engaged in the following analytics activities:

	Blackboard Analytics	Starfish Retention Solutions	PAR	Civitas	EAB	Noel-Levitz
BSU		X	- Student Success Matrix - Full analytics platform			
CSU	X		- Student Success Matrix - Full analytics platform			
FSU			- Student Success Matrix - Full analytics platform			X
SU			- Student Success Matrix		- Student Success Collaborative - Academic Affairs Forum - Student Affairs Forum	
TU			- Student Success Matrix		- Student Success Collaborative - Academic Affairs Forum - Advancement Forum - IT Forum	
UB			- Student Success Matrix		- Student Success Collaborative - Academic Affairs Forum	
UMB			- Student Success Matrix		- Business Affairs Forum - Advancement Forum - Student Affairs Forum - Academic Affairs Forum - COE Forum	
UMBC			- Student Success Matrix		- Student Affairs Forum - COE Forum - Business Affairs Forum	
UMCP			- Student Success Matrix	X	- Enrollment Mngmt. Forum - Student Affairs Forum - Business Affairs Forum	
UMES			- Student Success Matrix - Full analytics platform			
UMUC			- Student Success Matrix - Full analytics platform	X	- COE Forum	
USMO					- University Systems Forum (Academic Affairs Track)	

These examples of the uses of analytics only scratch the surface of the opportunities on which we hope to capitalize as we become more sophisticated in using the tools that are

available. In addition, these examples also do not yet take advantage of the collective power of pooling our institutional data across the system in order to better understand the student success interventions that are and are not working and to learn from each other collaboratively.

To begin that larger, system-wide discussion, the USM has contracted the services of a non-profit organization called the Predictive Analytics Reporting (PAR) Framework. Work will begin this fall to use PAR's Student Success Matrix (SSMx) to engage all of the institutions in the analysis of their "Closing the Achievement Gap" programs as a collective project led by the Kirwan Center for Academic Innovation in collaboration with the Academic Transformation Advisory Council (ATAC). Additionally, PAR will work with 5 of our campuses as "full" members who will have complete access to the suite of tools PAR provides for collecting and analyzing data student level data in order to explore a variety of questions around retention and college completion.

Moving forward, an outline of our planned activities includes:

- engaging leadership (Presidents, Provosts, Vice Presidents for Student Affairs),
- ensuring engagement of leadership teams on campuses through a series of "community of practice" multi-institutional workshops focused on analytics in support of improved student success and retention based on PAR and other analytics functionality at the institutions,
- working to engage faculty leadership and faculty across USM and on campuses (Council of University System Faculty, other faculty governance structures),
- working to support the PAR network campuses through more intensive professional development and services, and
- gathering initial data for possible presentations to the Board of Regents and the state, especially in the context of required reports.

CHALLENGES:

- Definitions of data points that can be aggregated
- CHANGE MANAGEMENT, especially with faculty
- Difficulty of switching to thinking in terms of "return on investment"

STRATEGIES:

- Strong and consistent messaging
- Collection, analysis, and dissemination of initial data (early "wins")

We look forward to rapid developments during this year in gathering useful data that will help guide decision making on campuses to make their programs, both academic and student support services more effective and efficient. We believe that the analysis of interventions and the focus on successful programs will lead to improvements in student success, including higher retention and graduation rates and shorter time to degree.