Technology Review: the possibilities of learning analytics to improve learner-centered decision-making

Stephanie J. Jones
Dr. Jones is an Assistant Professor of Higher Education at Texas Tech University, in Lubbock, Texas, and is the new Technology Review Editor for The Community College Enterprise.

In the days of doing more with less and public outcries for accountability, higher education organizations are constantly assessing and evaluating how to meet the demands of both internal and external stakeholders. There is a technology-based solution that is gaining momentum within higher education that appears to have possibilities in helping colleges and universities evaluate and assess student learning. I attended the 2011 WCET (WICHE - Cooperative for Educational Technologies) conference held in Denver, Colo., where there was a buzz in the air about analytics. Being a first-time conference attendee, it did not take long for me to recognize that WCET is one of the think tanks for emerging technologies and distance learning in the U.S.

Analytics in higher education are commonly referred to as academic analytics or learning analytics. The Society for Learning Analytics Research (SoLAR) distinguishes between the two types of analytics. SoLAR defines academic analytics as “the improvement or organizational processes, work flows, resource allocation, and institutional measurement through the use of learner, academic, and institutional data. Academic analytics, akin to business analytics, are concerned with improving organizational effectiveness” (2011, p. 4). They define learning analytics as “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. Learning analytics are largely concerned with improving learner success" (2011, p. 4). The 2011 Horizon Report defines learning analytics as, "the interpretation of a wide range of data produced by and gathered on behalf of students in order to assess academic progress, predict future performance, and spot potential issues" (Johnson, Smith, Willis, Levine, & Haywood, 2011, p. 27). The report goes on to say that, "the goal of learning analytics is to enable teachers and schools to tailor educational opportunities to each student’s level of need and ability" (para. 27). In the following discussion, I will emphasize learning analytics, with its focus on learning.

The premise behind learning analytics is that colleges and universities collect large amounts of data and information within individual college courses and academic programs as a whole, but do not always have the capabilities to analyze the data collected in a manner that produces useful information for data-driven decision-making. Learning analytics applications have the capabilities to mine data, analyze it through statistical analysis, and produce reports that show patterns, trends, and exceptions (EDUCAUSE, 2010).

Some touted benefits of analytics for colleges and universities are that it can be used to provide institutions with "predictive views of upcoming challenges, both for the institution and for students" and "resulting data-driven decisions can support optimal use of both economic and pedagogical resources while offering a structure for improved educational opportunities" (EDUCAUSE, 2010, para. 4). An example discussed in the EDUCAUSE report reflected on the critical first year of college, when students are making the transition from high school to college. Learning analytics can be used to determine when and where students falter during this critical time and help institutions determine where to best invest resources to ensure student success.

Technology-based solutions such as learning analytics generate concerns for organizations. The downside of learning analytics is that there is some concern of the legality and ethics surrounding the data collected and analyzed, in the areas of privacy, security, and ownership. Another concern is how conclusions are drawn from the information provided. Some are concerned that the analysis provided could allude to student profiling. EDUCAUSE has addressed this concern by reflecting on an institution’s irresponsibility of not taking action based on the useful information available. There is additional discussion occurring around the information provided through analytics that it is correlative and does not
indicate causation. The concerns lie in the analysis of the information we assumed to be the cause of an issue.

Learning analytics is in its infancy and as with many relatively new technologies, solutions are entering the market routinely. As higher education institutions are forced to deal with tighter budgets, decision-making becomes more important. Analytics may enable organizations to make data-driven decisions more quickly and accurately, which on the surface appears to lead to more efficient and effective uses of constrained financial and human resources. One organization that is devoting efforts to determine how learning analytics can be used to help institutions make learner-driven decisions, and who was referenced earlier, is SoLAR, who is “leading international researchers who are exploring the role and impact of analytics on teaching, learning, training and development” (Siemens et al., 2011, p. 2). As more organizations engage in research on the use of learning analytics, we will be able to determine its usefulness in learner-centered decisions.

A company that is familiar to many higher education organizations and has been involved in the development of analytic solutions is Blackboard, Inc. In a press release in early January 2012, Blackboard announced its field trial of its learning analytics solution, Blackboard Analytics™ for Blackboard Learn™. According to Blackboard, Inc., the Blackboard Analytics solution provides monitoring of usage patterns and data within the learning management system, while also having the ability to collect information from the student information system (PR Newswire, 2012). Blackboard projects that the data generated by the system can “be used to help better engage students, measure and improve learning outcomes, and assess the adoption and use of online learning tools” (PR Newswire, 2012, para. 2). The application presents “both course-specific and institution-wide data over time” (para. 2). This solution can be integrated with common student information systems such as Datatel, SunGard Higher Education, and PeopleSoft. In addition, the collected information can be used to “help individual instructors better identify and help at-risk students at the course level, while enabling administrators to better understand the impact of online learning and justify expenditures and investments at the institutional level” (PR Newswire, 2012, para. 6). Blackboard, Inc., is just one of many companies that are providing analytic tools in their learning management systems. In addition, some institutions are developing their own solutions such as Rio Salado College, who has implemented the Progress and Course Evaluation (PACE) system that enables them to identify students at risk in courses and programs (Grush, 2011).
Learning analytics appears to have potential as a technology-based solution to help colleges and universities assess and evaluate their learning environments to help improve student learning. As with any technology-based solutions, it will be important for us to continue to follow the research and conversations on this tool to determine its effectiveness in learner-centered decision-making during times of financial constraints.

References


