



University at Buffalo

Center for Educational Innovation

Academic Affairs

Using Learning Analytics for Strategic Planning in Higher Education

A Summary Report from the Center for Educational Innovation

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Introduction

Big data is an emergent field that uses data analytics to make informed decisions (Daniel, 2015). This big data phenomenon and research spread quickly to a variety of fields such as business, government and education, including teaching and learning in higher education institutions. Along with the emergence of big data, higher education institutions are attempting to utilize learning analytics combined with big data analysis. Despite efforts to use big data and learning analytics, the adoption of learning analytics in higher education institutions is in its early stages (Sclater, Peasgood, & Mullan, 2016; Tsai & Gasevic, 2016). Learning analytics is “the application of analytics to enhance or improve student success, and institutional analytics is its application to improve services and business practices across the institution” (Arroway, Morgan, O’Keefe, & Yanosky, 2016, p. 7). Learning analytics enable higher education institutions to proactively monitor the progress of student learning and improve their performance (Arroway, Morgan, O’Keefe, & Yanosky, 2016). Based on the use of learning analytics, higher education institutions are able to define strategic needs and priorities and establish their strategic planning (Yanosky & Arroway, 2015). This paper deals with the trend in how higher education institutions are using learning analytics for their strategic planning.

Purpose and Scope of this Paper

The purpose of this paper is to provide a snapshot of the use of learning analytics in higher education institutions and give administrators insight into how to use learning analytics for institutional strategic planning. This paper briefly reviews seven examples of institutions that actively use learning analytics to enhance student success and retention and develop a predictive model.

How Higher Education Uses Learning Analytics for Strategic Planning

There are a variety of ways that higher education institutions can use learning analytics. Table 1 shows how seven universities (e.g., Purdue University; the University of Maryland, Baltimore County; New York Institute of Technology; California State University; the University of New England; the Open University; and Open Universities Australia) use learning analytics for their strategic planning.

Table 1. Use of Learning Analytics for Strategic Planning in Higher Education (Sclater, Peasgood, & Mullan, 2016)

Institution	Use of Learning Analytics for Strategic Planning
Purdue University	<p>1. Purpose of Learning Analytics: To help students better understand their learning progress and performance, and increase their grade or consider a different path.</p> <p>2. Data Source: Student performance (points), efforts (interaction with the course), prior academic history and student characteristics (age, credits, etc.).</p> <p>3. Strategic Planning: To enhance student success at the course level, thus increasing retention and graduation rates.</p>

The University of Maryland, Baltimore County	<p>1. Purpose of Learning Analytics: To allow students to compare their own online course activity with a summary of the whole cohort's activity.</p> <p>2. Data Source: Any hit, click, or access of any tool or content in Blackboard.</p> <p>3. Strategic Planning: To identify effective teaching and learning practices in course design.</p>
New York Institute of Technology	<p>1. Purpose of Learning Analytics: To identify at-risk students with a high degree of accuracy.</p> <p>2. Data Source: Admissions application data, registration/placement test data, a student survey and financial data.</p> <p>3. Strategic Planning: To increase retention of students in the first year of their studies by creating a model to identify those who are in need of support.</p>
California State University	<p>1. Purpose of Learning Analytics: To find a better predictor of student success.</p> <p>2. Data Source: Student data on the use of online courses and student characteristic variables (i.e., gender, racial/ethnic group, income, high school grades, etc.).</p> <p>3. Strategic Planning: To develop predictive modeling and early warning systems.</p>
The University of New England	<p>1. Purpose of Learning Analytics: To identify students who are at risk through the Early Alert System.</p> <p>2. Data Source: e-Motion (data on student feelings each day) student input, class attendance, previous study history, prior results, assignment submissions and access patterns.</p> <p>3. Strategic Planning: To develop a dynamic, systematic and automated process that captures the learning status of all students.</p>
The Open University	<p>1. Purpose of Learning Analytics: To establish short-, medium- and long-term intervention strategies.</p> <p>2. Data Source: Data from Student Information System (SIS) and Virtual Learning Environment (VLE).</p> <p>3. Strategic Planning: To enhance continuous student learning experiences, retention and progression, and ultimately to develop an analytics mindset throughout the university.</p>
Open Universities Australia	<p>1. Purpose of Learning Analytics: To help struggling students by recommending alternative or more appropriate study paths.</p> <p>2. Data Source: Customer relationship management systems at Open Universities Australia, the learning management system, and the curriculum profiles for each unit and program.</p> <p>3. Strategic Planning: To provide each student with personalized and adaptive learning pathway planning.</p>

Challenges for strategic Planning and Policy

Despite the efforts to actively use learning analytics in higher education, there are still several challenges to adopt and use them for strategic planning (Tsai & Gasevic, 2016).

- **Lack of leadership capabilities:** Leadership to strongly drive the learning analytics initiatives and implementation, which are strategically aligned with the institutional goals.
- **Shortage of pedagogy-based approaches:** Pedagogy-based approaches to overcome learning barriers or problems identified by learning analytics need to be taken.
- **Insufficient training opportunities:** As end users, students and teachers need to have more training in how to best to use learning analytics.
- **Lack of evidence on the impact of learning analytics:** Although learning analytics are of great interest to academic fields, there is a limited number of research that verifies the effectiveness of learning analytics-based interventions.
- **Absence of policies tailored for learning analytics:** There are very limited policies that are tailored for learning analytics practices to address critical issues, such as privacy and ethics.

These challenges urge higher education administrators to develop new and comprehensive policies that meet all the requirements of learning analytics and to consider diverse problems and issues — such as pedagogical applications, institutional capacities, new assessment plans, ethical and privacy considerations, and strategic planning — that align learning analytics practices with the institutional goals and missions.

Conclusions

Although each institution uses learning analytics for strategic planning in different ways, some common reasons for strategic planning are as follows:

- To identify and support at-risk students and provide them with personalized and adaptive learning pathways.
- To initiate effective teaching and learning practices.
- To develop a predictive models and an early warning system.
- To enhance student success, retention and graduation rates.

Although in its early stages, the use of learning analytics in higher education is growing fast and changing the landscape of strategic planning in higher education. Learning analytics have the potential to transform traditional practices into revolutionary ones in teaching and learning, thus enabling higher education administrators to develop new ways of achieving institutional goals and missions that achieve excellence in teaching and learning. Therefore, higher education administrators need to keep an eye on the use of learning analytics and prepare for new changes in higher education environments.

References

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