

# Use of Data Analytics for Program Impact Evaluation and Enhancement of Faculty/Staff Development

**Samuel Olugbenga King**  
Auburn University, USA

## INTRODUCTION

One of the major developments in the 21<sup>st</sup> century academic development landscape is the pressure to meet “institutional concerns for quality control and accountability” (Land, 2011, p. 175). The now pervasive accountability culture, including a requirement for the use of “much more sophisticated evaluation mechanisms than have been the case in the past” (Brew & Peseta, 2008, p. 84) is typically driven by external accountability pressures. But there are also internal pressures. For example, Brew and Peseta (2008) describe how a change in management of an academic development unit can catalyze fresh demands for a systematic evaluation of the unit’s programs and effectiveness (pp. 83-84). *How might an academic development center that is faced with both external and internal accountability pressures demonstrate the impact and contributions of its programs to the broader institution’s strategic plan?*

To address this challenge, this paper will focus on the use of data analytics to satisfy the twin external and internal accountability demands (*summative evaluation*), while contributing to faculty and staff development in the process (*formative evaluation*). The goal is to meet the “increasing ‘troublesome’ expectations for academic development specialists to demonstrate the impact of their work” (Taylor, 2011, p. 95) through the use of data analytics, which enables systematic evaluation. In the next section, data analytics will be introduced within the context of the broader higher education institutional research ecosystem.

## BACKGROUND: INSTITUTIONAL RESEARCH AND DATA ANALYTICS

Historically, the field of institutional research in higher education is predominantly focused on the strategic use of information and data sets to implement, review and enhance the academic mission of the university (Buller, 2012). The types of data that have been collected include system-generated behavioral data, e.g., human resource systems; survey data; transactional data, e.g., learning management systems; and frozen data, e.g., admission head counts (Bichsel, 2012, p. 16). But with the technology revolution, higher education is increasingly adopting and leveraging a range of data systems to support institutional capacity and meet strategic goals. The range of data systems that have been deployed to support higher educational units, such as student enrollment, information technology, budgeting and finance, human resources, student success, research administration, and facilities, include enterprise resource management (ERP) systems or business management/intelligence software, academic enterprise systems (e.g., LMS), customer relationship management (CRM) systems, and personalized learning environments, including assessment software (Norris & Baer, 2013, p. 9). An overview of the data analytics ecosystem in higher education is presented in Figure 1.

Moreover, 69% of higher education institutions surveyed in the USA on the use of data analytics indicated that analytics was either a “major institutional priority” or “major priority for some

Figure 1. Use of data analytics in higher education, with list of providers  
Adapted from Norris & Baer, 2013, p. 19.

<b>ERP/BI</b>	<ul style="list-style-type: none"> <li>• Oracle/PeopleSoft/Hyperion</li> <li>• Ellucian (Datatel/SunGard)</li> <li>• Campus Management</li> </ul>	<ul style="list-style-type: none"> <li>• Jenzabar</li> <li>• SAP/Business Objects</li> <li>• Workday (Big Data offering)</li> </ul>	<ul style="list-style-type: none"> <li>• Top School</li> <li>• Destiny Solutions</li> <li>• Adobe</li> </ul>
<b>LMS</b>	<ul style="list-style-type: none"> <li>• Blackboard/iStrategy</li> <li>• Moodle rooms</li> <li>• Desire2Learn</li> </ul>	<ul style="list-style-type: none"> <li>• Pearson/eCollege</li> <li>• LoudCloud</li> <li>• Sakai</li> </ul>	<ul style="list-style-type: none"> <li>• Instructure/Canvas</li> <li>• Campus Cruiser</li> <li>• Appendra</li> </ul>
<b>Visualization/CRM Dashboard/Analytics Consulting/Generalized Advising</b>	<ul style="list-style-type: none"> <li>• IBM (SPSS/Cognos)</li> <li>• Microsoft</li> <li>• eThorty</li> </ul>	<ul style="list-style-type: none"> <li>• Nuventive</li> <li>• eVisions</li> <li>• Pentaho</li> </ul>	<ul style="list-style-type: none"> <li>• iDashboard</li> <li>• Tableau</li> <li>• QlikTech</li> </ul>
<b>Advising/CRM → Learning Relationship Management</b>	<ul style="list-style-type: none"> <li>• Starfish Retention Solutions</li> <li>• Civitas</li> </ul>	<ul style="list-style-type: none"> <li>• EBI/MAPWorks</li> <li>• RapidInsight</li> </ul>	<ul style="list-style-type: none"> <li>• Hobsons</li> <li>• Respondus</li> <li>• Salesforce.com</li> <li>• Talisma</li> <li>• ConnectEDU</li> <li>• Campus Lab</li> </ul>
<b>Personalized Learning Environments</b>			<ul style="list-style-type: none"> <li>• WebStudy</li> <li>• Knewton</li> <li>• Cengage</li> <li>• Turning Technologies</li> <li>• Epsilen</li> <li>• SoftChalk</li> <li>• Ucompass</li> <li>• eXact Learning Solutions</li> <li>• GoingOn</li> <li>• SMART Technologies</li> </ul>

departments but not entire institution” (Bichsel, 2012, p. 8). But this is not just an American phenomenon. For example, ERP systems (e.g., Oracle and PeopleSoft) and LMSs (e.g., Blackboard, Moodle and Sakai) are pervasive at institutions in Africa, Asia and Europe (e.g., Cochrane, Black, Lee, Narayan, & Verswijvelen, 2013; Nkurunziza, 2013). This pervasiveness of analytics systems is linked with their perceived benefits for student enrollment and academic success, optimization of the use of institutional resources, and demonstration of higher education’s effectiveness and efficiency (Bichsel, 2012, p. 11). As Petersen (2012) commented, the “current higher education landscape is replete with demands for improving accountability, increasing efficiency, and controlling costs. At the same time, information technologies make it easier to collect and analyze

information to measure outcomes or to assist in decision making” (p. 44).

It is therefore clear from the ubiquity of data analytics in higher education that institutions have adopted them as a systematic tool to measure, support and enhance performance. But this question may arise, *Are there any specific reasons why analytics would be strategically beneficial to academic development?* In the next section, I will highlight the role of data analytics in academic development.

## THE ROLE OF DATA ANALYTICS IN ACADEMIC DEVELOPMENT

The field of academic development is evolving, but one of the requirements for further advancement

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