

USING DATA TO SUPPORT TEACHING & LEARNING

Meeting 1: October 22, 2018

ARTICLE SUMMARY

Daniel, B. (2015). "Big Data and Analytics in Higher Education: Opportunities and Challenges." *British Journal of Educational Technology*. 46(5). p. 904-920.

I recommend focusing on pages 910-920. This section provides an explanation of how big data can provide a more "effective evidence-based decision making" in higher education, how it helps predict the future performance and identify potential issues and opportunities in academic programming, teaching and learning. The article explains the aspects that big data can impact: 1) institutional analytics (helps decision making at institutional level); 2) informational (IT) analytics; 3) academic/program analytics (reflects the role of data in an institutional and departmental level); and 4) learning analytics (collecting and analyzing data about learners such as, track student behavior, number of clicks, time spent on a page, etc., to understand and improve learning). Including this student behavior-specific data in the repository of student-related information that is collected in the institutional level empowers the predictive and prescriptive models. It analyses the relationship between learner, content, institution, and educator...

The article distinguishes between descriptive, predictive, and prescriptive analytics and the relationship between them. It concludes with a list of challenges, including: 1) acceptance from management; 2) integrating data from various sources to enable the aggregation of administrative data with classroom and online data; 3) quality of data collected; 4) ethics, privacy

POINTS FOR DISCUSSION

1. How is digital revolution changing the mode and accessibility of learning and teaching?
How and what data is now collected or should be collected?

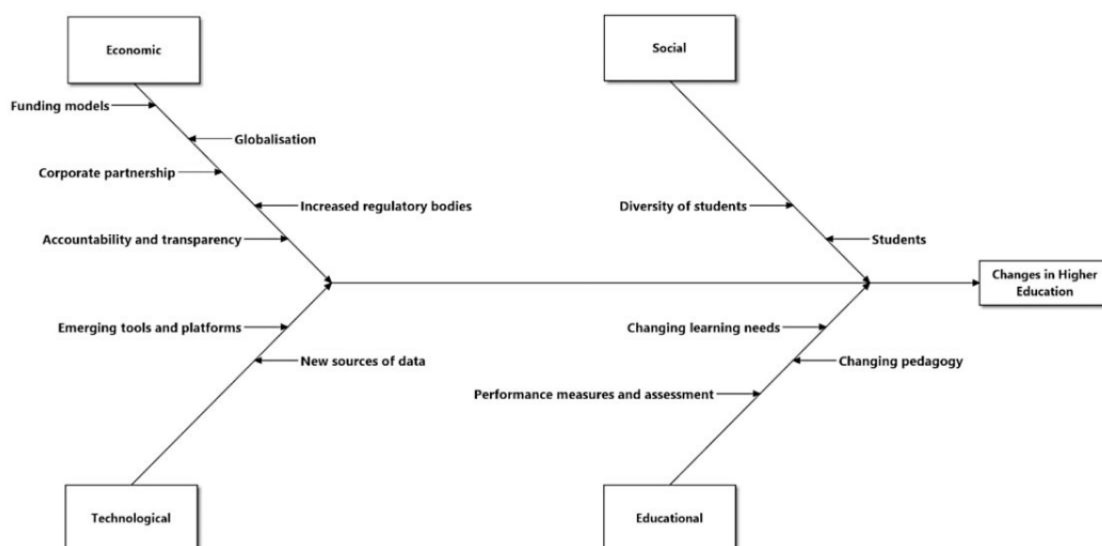


Figure 1: Current trends affecting institutions of higher education

“Over the last decades, a digital revolution associated with developments in new technologies such as ubiquitous computing devices, flexible classroom design and Massive Open Online Courses is radically reshaping the mode and accessibility of learning and teaching” (Daniel, 2015, p. 906).

“Using data to make decisions is not new... however, the nature of data available to most organizations is changing, and the changes bring with them complexity in managing the volumes and analysis of these data...” (Daniel, 2015, p. 907).

“According to IBM, 80% of the data organizations currently generated are unstructured, and they come in a variety of formats such as text, video, audio, diagrams, images and combinations of any two or more formats” (Daniel, 2015, p. 907).

2. What are Big Data opportunities for each role?

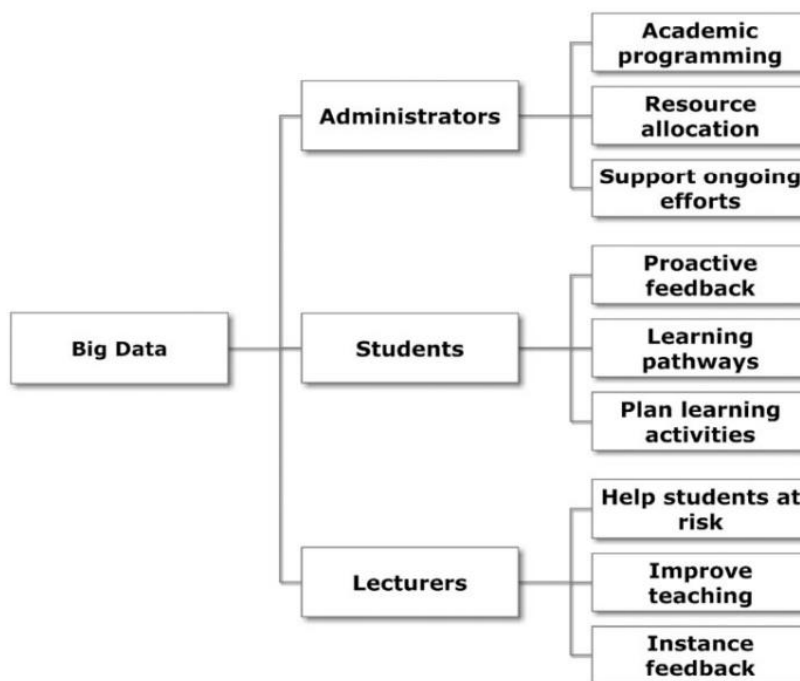


Figure 5: Key Big Data opportunities for three end-users in higher education

3. How can we use and integrate data from classroom with other systems?

“Big Data Analytics could be applied to examine student entry on a course assessment, discussion board entries, blog entries or wiki activity, which could generate thousands of transactions per student per course. These data would be collected in real or near real time as it is transacted and then analyzed to suggest courses of action.” (Daniel, 2015, p. 910).

“Big Data can also address the challenges associated with finding information at the right time when data are dispersed across several unlinked different data systems in institutions. By identifying ways of aggregating data across systems, Big Data can help improve decision-making capability.” (Daniel, 2015, p. 911).