Building a Data Governance Model for Learning Analytics

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PANEL SUMMARY

This international panel presentation aims to explore and discuss the issues that emerge when an educational institution decides to develop learning analytics initiatives. While learning analytics may provide data that lead to improvements in the quality of teaching and learning design, and therefore has the potential to enhance the overall quality of education, the successful development and implementation of tools and processes for learning analytics are complex and problematic. In this panel, data governance considerations will be discussed from organizational, ethical, learning design, and technical points of view.

Categories & Subject Descriptors

 J.1 **[Administrative Data Processing]** Education; **K.3.1 [Computer Uses in Education]** Collaborative learning, Computer-assisted instruction (CAI), Computer-managed instruction (CMI), Distance learning

General Terms

Management.

Keywords

 Learning Analytics, Ethics.

1. LIST OF PANELISTS

Chair: Cindy Ives, Acting Associate Vice President (Learning Resources), Athabasca University

Discussants:

- Sabine Graf, Assistant Professor, Computing and Information Systems, Athabasca University

- Lori Lockyer, Professor, Faculty of Education, University of Wollongong

- Paul Hobson, Director, Enterprise Architecture, Information Technology, The University of British Columbia

- Doug Clow, Lecturer, Interactive Media Development, Institute of Educational Technology, The Open University UK

Format:

After a brief introduction to the topic and the presenters, each discussant will offer an opening statement about their perspective on the factors affecting learning analytics projects with which they are familiar. Each will then address the following specific questions related to data governance:

- Who owns the data that are being analyzed? Students, instructors, administrators, learning designers? What permissions are necessary for data access? What documentation is required?

- To what extent do student and instructor privacy concerns determine the nature and scope of a learning analytics project? What consultations are necessary with stakeholders?

- Should the analysis of learning and teaching data be considered as research? To what extent should learning analytics projects be subject to the guidelines and controls of research ethics boards?

- For student facing analytics projects such as dashboards and identification of learners at risk, when does responsible facilitation of learning cross the line to be seen as an intrusion on learners' privacy?

- From a technical point of view, what types of data can be tracked and used in learning analytics? How does this correlate with the types of data that should be tracked in order to inform appropriate conclusions?

Audience input will be encouraged with a view to engaging an open discussion of these and other issues.

2. TOPIC OF THE PANEL

This panel brings together representatives from four universities from different countries and with distinct mandates to discuss factors to be considered during the implementation of a learning analytics initiative. Indeed, we will propose that the issues are best discussed broadly across the institution in advance of a learning analytics project, and should be framed in the context of data governance.

The promise of analytics for higher education institutions has been well articulated for several years [3], but researchers have noted that actual applications are limited [6]. Recent initiatives [2] in organizational level academic analytics focusing on student retention, such as at the American Public University System [5], and on providing learners with dashboards to chart their progress through online courses, such as the Course Signals program (Purdue University, 2009), have great potential to inform systemic improvements to online learning experiences. Other approaches emphasize extracting evidence of student behaviors inside learning systems, with a view to informing iterative improvements in course design [4]. This methodology is analogous to the immediate and informal feedback of face-to-face instruction, and has the added potential benefit of making teaching and learning practice more transparent, leading to the design of qualitatively different online learning environments.

Methodological considerations are critical when considering data analysis projects [1]. Issues of data quality, interpretability, ethics and privacy need to be understood and addressed in order to draw valid and reliable inferences, before applying this new knowledge in practical ways. The skills to interpret data are not trivial. Neither are the skills to design and develop tools for identifying and accessing data of interest.

As well, in order for learning analytics tools to contribute to the improvement of pedagogical practices, evaluation measures and feedback mechanisms are needed, where the results of the analytic tool are measured in terms of whether and how much they benefit instructors and course designers, and whether and how much they lead to improved learning designs. Furthermore, such new or revised teaching and learning design practices must be evaluated with respect to whether they really enhance student learning. Users of data also need mechanisms that communicate whether the implemented learning analytics techniques are useful for them and what further information would help them to improve the overall quality of their practice.

A wide variety of factors affect decision making about data analysis in general, and learning analytics in particular, among them data security and access, governance policies and procedures, data volumes and visualization, data accuracy and comprehensiveness, as well as user needs for information, strategies for units and levels of analysis, and feedback mechanisms for evaluating usefulness and interpretability. The complexity of the relationships among organizational processes, analytic tools and interpretive methods suggests careful design and planning of academic analytics projects to ensure appropriate, ethical and useful benefits.

3. REFERENCES

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