Where Learning Analytics Meets Learning Design (workshop summary)

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ABSTRACT

The wealth of data available through student management systems and eLearning systems has the potential to provide faculty with important, just-in-time information that may allow them to positively intervene with struggling students and/or enhance the learning experience during the delivery of a course. This information might also facilitate post-delivery review and reflection for faculty who wish to revise course design and content. But to be effective, this data needs to be appropriate to the context or pedagogical intent of the course – this is where learning analytics meets learning design.

Categories and Subject Descriptors

H.1 Models and Principles

General Terms

Measurement, Design, Human Factors

Keywords

learning design, pedagogical models, learning analytics, social network analysis, university teaching

1. BACKGROUND

The field of learning analytics is concerned with integrating the 'big data' sets available in the higher education context in order to better understand student engagement, progression and achievement. Student information systems capture demographic and academic background of students as well as their academic plans and achievements. Learning Management and library systems capture aspects of students daily online academic (and sometimes social) life – what resources they access, which teachers and peers they interact with, which learning activities they engage in, what assessment tasks they complete.

Traditionally, universities have used this data retrospectively – and often on an ad hoc basis – to evaluate courses, consider resource allocation, identify institutional performance issues. The analysis tools and modeling being developed in the field of learning analytics allows university educators and administrators opportunities to draw upon this data in order to actively intervene in the academic process and provide a tailored and more personalized education experience for students. For struggling students, this might mean early identification and support that has the potential to limit attrition. Analytics that support identification of high achieving students might allow universities to provide options for further challenges and opportunities.

Numerous examples of the use of learning analytics to date have focused on institutional use. However, there is great potential in learning analytics for faculty delivering individual courses. These significant data sets and the tools and models to integrate and analyse them may provide important information for faculty to adapt a course and/or direct support to individual student or groups of students during the academic semester. Learning analytics also provides additional and more sophisticated information, then student satisfaction surveys, to help faculty review and revise courses after the academic semester is complete.

To be most useful for faculty during and post course delivery, learning analytics need to match the teaching and learning intent of the course. The possible data is endless, but faculty will not use endless amounts of data. Specific, analyzed, and appropriately presented data has the potential to be useful and effective. But what learning analytics are useful with what types of courses? This is where learning analytics meets learning design.

The field of learning design has developed for more than a decade now as a way of documenting and sharing examples of teaching and learning practice – particularly in higher education. Learning designs have been represented in various forms but all essentially describe the sequence learning activities, resources and supports that a faculty member constructs for students over part or the entire academic semester. In essence, learning designs capture teaching and learning intent. And, they may be a useful tool in attempting to identify the specific learning analytics that might best support faculty based on that teaching and learning intent.

This workshop bring the two fields of learning design and learning analytics together as a way forward in establishing useful analytic models for course delivery and review.

2. Workshop objectives and plan

In this workshop, participants

- further developed their understanding of learning design and learning analytics
explored how learning analytics that can support faculty during course delivery and for course review. identified the types of learning analytics that can be useful for different learning designs.

This workshop involved:
- brief overview presentations about learning design and learning analytics
- participant brainstorm session about what learning analytics might support faculty during (1) course delivery and/or (2) course review
- participant groups working with specific designs from the Learning Designs Project\(^4\) to identify relevant learning analytics
- particular focus on social network analysis to support communication and collaboration learning designs

3. ABOUT THE FACILITATORS
Professor Lori Lockyer teaches and researchers in educational technology in the Faculty of Education at the University of Wollongong in Australia. Lori’s research and development work has focused on how online technology can support teaching and learning particularly to foster collaborative learning. Over the past decade Lori has been investigating how Learning Designs can support university faculty to effectively integrate technology into their teaching.

Dr Shane Dawson is the Director of Arts Instructional Support and Information Technology at the University of British Columbia. His research centres on the application of quantitative data derived from student online activity to inform teaching and learning practice. Shane's research demonstrates the use of student online interaction and network data to provide lead indicators of learning support, sense of community, course satisfaction, learning dispositions and creative capacity.

Shane and Lori have been working with collaborators to understand how social network analysis supports effective teaching in higher education and are extending this work to investigate the integration of learning analytics with learning design.

4. REFERENCES
Relevant references and resources for this workshop:


