

Adoption of Learning Analytics in Higher Education: State, Challenges, and Policies

- Executive Summary -

1. Context

There is a growing interest in learning analytics among higher education institutions in the UK and other countries. However, the maturity levels of higher education institutions in terms of being 'student data informed' are only at early stages. Studies have shown that most institutions are still in a preparatory or early stage of adoption, i.e. showing awareness of analytics and using some basic reports. To assist European universities to become more mature users and custodians of digital data collected from students during online learning activities, the SHEILA project, funded by European Commission via the Erasmus + program, aims to build a policy development framework that promotes formative assessment and personalised learning by taking advantage of direct engagement with stakeholders in the development process. The first phase of the SHEILA project is to map out the state of learning analytics in higher education and identify emerging challenges by engaging with relevant empirical studies. Another major task in this phase is to interrogate existing learning analytics policies to identify gaps to address and lessons to learn. For these purposes, a systematic literature review was conducted and the results are summarised below. The full report is available upon request.

2. Methodology

The search of relevant literature was carried out in four stages between June and July 2016. The first stage involved key-word searches ("learning analytics" and "policy or policies") on various databases and journals that were known for substantial collections of studies in the fields of learning analytics, social sciences and computer science. The main topics considered included ethics and privacy, policies, institutional strategies, institutional readiness, and institutional capacities. 23 empirical studies were eventually selected, and reviewed thoroughly in addition to 8 existing policies for learning analytics that were identified.

3. Results

The results show that more empirical studies have been carried out in the USA than anywhere else. A likely reason is the continuous research input from the non-profit association, EDUCAUSE¹, which supports the use of information technology in higher education. Learning analytics publications first emerged in 2011 and their numbers have continued to grow. Among the relevant themes, ethics and privacy related issues have predominantly been studied using non-empirical methods. Themes of institutional readiness, capacities and strategies have been studied equally using both empirical and non-empirical methods. A review of empirical studies found that many studies lacked detailed descriptions of adopted methodologies.

4. The State of Learning Analytics Adoption

Overall, the adoption of learning analytics in higher education is in early phases. In the USA, there is a higher interest in monitoring or measuring student progress than predicting learning success or prescribing intervention

strategies². Learning analytics remains an interest rather than a major priority at most institutions in the USA³. In Australia, a study supported by the Australian Government Office for Learning and Teaching found that only 2 out of the 32 institutions under study reached the advanced stage – having evidence of implementation of multiple interventions or initiatives informed by data, while the rest of the cases were either at the preparatory stage of learning analytics or early stage of implementation⁴. In the UK, a survey (N = 53) conducted by the Heads of e-Learning Forum⁵ among their members discovered that 25 respondents did not implement learning analytics at all, 18 were working towards implementation, 9 partially implemented, and only 1 fully implemented learning analytics across their institution⁶. Another study conducted by Jisc explored the adoption of learning analytics in 12 institutions in the UK and discovered that few interviewees were willing to claim significant outcomes from their learning analytics activities to date due to the nascent stage of learning analytics technologies and practice⁷. The above-mentioned phenomena highlight the need to investigate existing challenges in the adoption of learning analytics so as to move learning analytics towards achieving its potential in optimising learning.

5. Challenges in the Adoption of Learning Analytics

Several challenges related to strategic planning and policy have been identified. These can be summarised in six areas:

- Challenge 1: There is a shortage of leadership capabilities to ensure that implementation of learning analytics is strategically planned and monitored.
- Challenge 2: There are infrequent institutional examples of equal engagement with different stakeholders at various levels.
- Challenge 3: There is a shortage of pedagogy-based approaches to removing learning barriers that have been identified by analytics.
- Challenge 4: There are insufficient training opportunities to equip end users with the ability to employ learning analytics.
- Challenge 5: There are a limited number of studies empirically validating the impact of analytics-triggered interventions.
- Challenge 6: There is limited availability of policies that are tailored for learning analytics-specific practice to address issues of privacy and ethics as well as challenges identified above.

These challenges highlight the need to develop a comprehensive policy that meets the requirements of learning analytics and considers multiple dimensions including an institution's context, stakeholders therein, pedagogical applications, institutional capacities, success evaluation, legal and ethical considerations, and a strategy that aligns with the institution's missions.

6. Tackling the Challenges – Learning Analytics Policies

The 8 policies reviewed include 4 policies developed by research consortiums and supporting organisations, and 4 by higher education institutions:

- Jisc – *Code of Practice*
- EU-funded LACE project – *A DELICATE checklist*
- EU-funded LEA's Box project – *Privacy and Data Protection Policy*
- National Union of Students (NUS) (UK) – *Learning Analytics: A Guide for Students' Unions*
- Open University (OU) – *Policy on Ethical use of Student Data for Learning Analytics*
- Charles Sturt University (CSU) – *CSU Learning Analytics Code of Practice*
- Nottingham Trent University (NTU) – *Use of Learning Analytics to Support Student Success Policy*
- University of Sydney (USyd) – *Principles for the Use of University-held Student Personal Information for Learning Analytics at the University of Sydney*

The 8 policies demonstrate a desire to protect user privacy and use data transparently, responsibly, and ethically, while respecting the diversity and autonomy of students. In addition, the development of learning analytics policies in the 4 universities (OU, CSU, NTU, and USyd) indicates that there is support of senior management and a governing body to oversee the practice. However, the results of the review suggest that some of the identified challenges still need to be addressed:

- There is no indication of channels for two-way communication among stakeholders at different levels in all policies.
- There is limited mention of pedagogy-based approaches that teaching staff, information officers, and senior managers should take when making decisions regarding teaching and system development and analytics technology/services procurement.
- The development of skills required for learning analytics among end users is only present in the OU policy.
- There is limited mention of the evaluation of the impact of interventions introduced to learning or teaching design in all policies; the USyd policy is the only one that suggests an evaluation process on the achievement of goals set for learning analytics.

7. What is Next?

The SHEILA project team will continue to investigate the challenges that higher education institutions face today. In addition to the findings of this literature review, the SHEILA project will also use the findings collected through the following data collection activities:

- interviews with senior institutional leaders responsible for the implementation of learning analytics in European higher education institutions,
- group concept mapping with experts, practitioners, and policy makers,
- a survey about institutional readiness for learning analytics implementation administered to the members of the European University Association.

The main deliverable of the SHEILA project will be a policy development framework that supports higher education institution in learning analytics adoption and implementation. The framework will be based on the RAPID Outcome Mapping Approach (ROMA)⁸. ROMA was originally designed for policy engagement and influence in international development. In light of the challenges identified in literature, four principles have emerged as guidelines for the following work:

- learner centred focus,
- mindful coverage of institutional context and stakeholders,
- comprehensive coverage of legal and ethical considerations, and
- strategically planned implementation and monitoring.

8. How to get involved?

The SHEILA team is in the process of identifying associate institutional partners who are interested in collaborating on the development of their institutional learning analytics policies by using the results of the SHEILA project. Collaborations are planned to commence in early 2017. Enquiries about possible involvement are welcome.

9. Contact

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¹ <http://www.educause.edu/>

² Yanosky, R. and Arroway, P. 2015. *The Analytics Landscape in Higher Education*. ECAR.

³ Arroway, P., Morgan, G., O'Keefe, M. and Yanosky, R. 2016. *Learning Analytics in Higher Education*. ECAR.

⁴ Colvin, C., Rogers, T., Wade, A., Dawson, S., Gasevic, D., Shum, S.B., Nelson, K., Alexander, S., Lockyer, L., Kennedy, G., Corrin, L. and Fisher, J. 2015. *Student Retention and Learning Analytics: A Snapshot of Australian Practices and a Framework for Advancement*. The Australian Government Office for Learning and Teaching.

⁵ HeLF's membership includes heads of 130 UK-based universities

⁶ Newland, B., Martin, L. and Ringan, N. 2015. *Learning Analytics in UK HE 2015: A HeLF Survey Report*.

⁷ Sclater, N. 2014. *Learning Analytics: The Current State of Play in UK Higher and Further Education*. Jisc.

⁸ Young, J. and Mendizabal, E. 2009. *Helping Researchers Become Policy Entrepreneurs-How to Develop Engagement Strategies for Evidence-based Policy-making*. Overseas Development Institute.