Evidence for Enhancement:
Improving the Student Experience

Learning Analytics: Implementing learning analytics in institutions

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About this paper

This paper has been written for institutional managers and academics who are using, or wish to use, learning analytics to support the enhancement of the student experience. The aim of the paper is to help inform conversations with learning analytics experts in their institutions about some of the issues and challenges that are emerging from the learning analytics research field that may impact on institutional activities.

An overarching trend is the need to increase capacity for institutional staff and students to engage with ethics, design, understanding and using learning analytics. Where this has previously been the concern of a relatively small number of experts, it is becoming increasingly important that a broader community is equipped to participate in the conversation.

This is one part of a longer discussion paper[1] based on an adaptation of Clow's 2012 cycle of learning analytics. The main paper includes four key sections:

- data creation and collection
- working with and understanding data
- using data to enhance the student experience
- **implementing learning analytics in institutions (this paper).**

The main paper also includes a series of 'hot topics', which we have made available as separate factsheets.

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[1] www.enhancementthemes.ac.uk/docs/ethemes/evidence-for-enhancement/learning-analytics-discussion-paper.pdf

Implementing learning analytics in institutions

Universities are complex organisations, and the process of implementing any change can be difficult. Learning analytics is attempting to move from the domain of research findings to cross-institutional use, which is challenging not least because of the numbers and diversity of stakeholders involved (Ferguson et al, 2014). Most higher education institutions are at very early stages of adopting institutional approaches to learning analytics (Tsai, Moreno-Marcos, Tammets, Kollom, & Gasevic, 2018) - however, some frameworks and tools have been produced that aim to help institutions hold the right conversations and develop the right actions. These are provided below for information.

Ferguson et al (2014) offer a systematic approach that considers the many different factors that form part of attempting to implement learning analytics. This is based on the ROMA (Rapid Outcome Mapping Approach) model, which has been developed to offer an approach to implementation of other policy frameworks in complex environments.
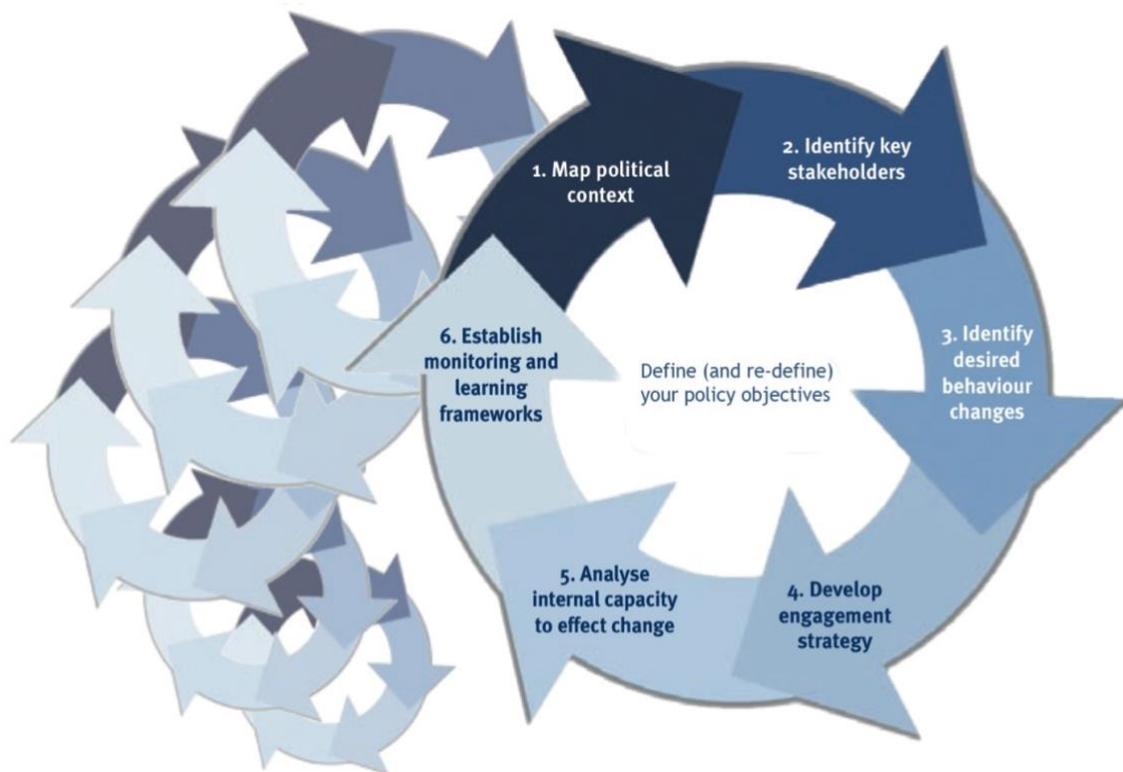

Figure 1: ROMA model

This model has been adopted by the SHEILA (Supporting Higher Education to Integrate Learning Analytics) project. The project (SHEILA, 2018[2]) has developed a framework that encourages institutions to consider the key issues of action, challenges and policy for each stage of the ROMA framework. This is represented diagrammatically below in Figure 2:
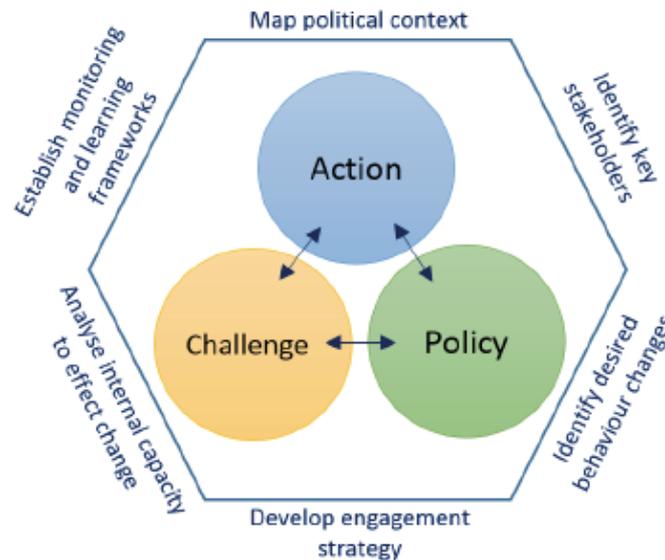

Figure 2: SHEILA policy framework structure (Reproduced from Tsai et al, 2018)

The SHEILA model is being adapted for use in Latin America through the LALA project involving institutions from Chile, Ecuador and institutions from Europe (Maldonado-Mahauad, Perez-Sanagustín, Kizilcec, Morales, & Munoz-Gama, 2018).

Ferguson and Clow (2017), reporting on a learning analytics expert workshop on the SHEILA project, identified many factors that would assist the successful implementation of learning analytics in an institution. These include:

1   A clear purpose for learning analytics, that is understood by everyone participating and is compatible with and supports existing organisational goals.
2   A sponsor from the senior management team to champion learning analytics, with a realistic understanding of what can be achieved. This was supported by a Murdock University case study (West et al, 2016) which reported that for learning analytics to be viable in an institution it needed sponsorship from senior managers.
3   A project leader to create realistic plans.
4   A project manager to take charge of day-to-day development.
5   Identification of accessible data sources.
6   Communicating the benefits to tutors and learners - this can take a sustained effort over time (West et al, 2016). Tutors and learners need to be able to appreciate the practical advantages of employing learning analytics (Gunn, McDonald, Donald, Milne, & Blumenstein, 2017).
7   The need to involve skilled data analysts who understand teaching and learning.
8   The need to train staff to handle the learning analytical outcomes (for example data literacy).

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[2] www.sheilaproject.eu/wp-content/uploads/2018/08/SHEILA-framework_Version-2.pdf (124KB).

9   Consideration of the ethics of the development - including the learners' voice
         - in decision making.

At the LAK18 conference, Hainey et al (2018) reported a case study where the ROMA model and the outputs of the SHEILA project were being used to map how the University of Strathclyde was implementing an institutional learning analytics approach. Activity planned was presented in a case study:

ROMA Stage	Definition	Institutional Direction/Method
Define policy objectives	Define objectives/motivations for learning analytics	• Enhance student learning experience
Map political context	Identify internal and external drivers	• Improve UK National Student Survey (NSS) results • Improve assessment & feedback and provide evidence for assessment & feedback policy • No retention issue at present however, there is recognition that expansion in distance learning and work based learning programmes could present a challenge • Institutional decision making
Identify key stakeholders	Identify users of learning analytics	• Students • Academics • Head of Departments/Director of Teaching • Vice Dean Academic/Faculty Dean • Senior Management Team • Professional Services • Institutional Education Committees
Identify desired behavior changes	Identify desired changes for key stakeholders in the current context	• Improved assessment experience and improve quality and timeliness of feedback for students • Provide academic staff with a mechanism to review their own assessment & feedback strategy

		• Provide evidence for course design and course review • Provide measurable data and evidence of success for senior departmental and faculty staff • Identify training opportunities for staff in assessment & feedback area • Improved student survey results and improved UK NSS scores in assessment & feedback
Develop engagement strategy	Scope areas related to ethics & privacy, financial & human resources, internal & external support, methodology, and stakeholder engagement	• Consult relevant policies and code of practice • Establish a Learning Analytics Board, with representatives from key stakeholders • Align learning analytics with other educational strategies, such as Learning Enhancement Framework • Conduct faculty and professional services collaboration sessions with staff and similarly with students to ensure positive engagement based on Agile Methodology • Continue with external engagement i.e. SoLAR, LAK, Jisc, SHEILA Project
Analyse internal capacity to effect change	Evaluate culture, legal frameworks, financial capacity, human capacity, and technological infrastructure	• Jisc Learning Analytics Readiness Assessment provided feedback on culture, processes, people and technology • Work with Information Governance Unit to ensure compliance with incoming General Data Protection Regulations • Creation of a data mart within the institutional data warehouse • Examine internal resource capabilities and seek to fund new appointments if needed
Establish monitoring and learning networks	Establish qualitative and quantitative measures of success	• Improved student satisfaction in student surveys • Increased student attainment • Operational efficiencies and satisfaction for academic staff • Increased NSS scores in assessment & feedback areas • Successful implementation of reviewed/revised assessment & feedback policy and associated staff training

Figure 3: University of Strathclyde use of ROMA

Jisc has also produced a questionnaire that institutions can use to assess their institutional readiness for learning analytics as part of their support for institutions.[3] Webb and Bailey (2018), reporting on the lessons learnt from the two-year Jisc programme to develop a national learning analytics service, identify a range of key points, many of which align with Ferguson and Clow's (2017) observations: in particular, the importance of key stakeholders and a user-centred approach. Webb and Bailey also make clear that progress and change needed time and to appreciate the 'legal and contractual complexity'. Data literacy is also highlighted as being important and reflected in one point regarding the wishes of data-users to understand predictive models.

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[3] analytics.jiscinvolve.org/wp/on-boarding/step-6-readiness-assessment.