

Extending Data Literacy and Creating Opportunities for Informed Consent: A Community Proposal

Problem Statement

Inclusivity and diversity are widely regarded as critical aspects¹ of teams innovating effectively. This is particularly true of solutions being created around learning analytics, which require a multi-and interdisciplinary approach. But to be truly inclusive in this context means going beyond conventional interdisciplinary approaches, and involving the subject of learning analytics - learners - in the design of the systems that support them. Co-design, with learners, should be an essential and fundamental principle of effective learning analytics design.

Successful co-design of analytics tools requires that students have a baseline level of understanding as to what data about them are being collected, what that data could be used for, and the means by which that data might be processed. It also requires learners to be aware of ethical considerations. Creating opportunities for increased understanding of these issues is the basis of enabling the development of informed or educated consent, and, at a fundamental level, of building trust.

This document, drafted at the LAK 2018 Hackathon in Sydney, is a first step in outlining elements of data literacy specific to learning analytics - such as algorithmic transparency - which may not be included in current conceptions of what constitutes “data literacy”, which tends to focus around data management..

The benefits of this approach are not limited to the relatively narrow needs of encouraging buy-in to learning analytics approaches at an institutional level. Increasing opportunities for learners to understand data and data processing is directly relevant to the wider education mission, and connects profoundly to the needs of future citizens of an increasingly data-driven society.

What would data literacy look like?

Data literacy encompasses the knowledge and skills needed to access, understand, analyse and evaluate data, make meaning, present ideas and opinions, and interact with data-driven systems and services. It includes understanding how data about individuals is processed by algorithms constituting them as data subjects. Only then can individuals give informed consent to participate in data-driven activities.

Elements of a Data Literacy Curriculum

1. Understand what an algorithm is and how they operate and be able to explain algorithms processing your data in plain language (how artificial intelligence, machine learning and robots interpret data).

¹ Insert Scott Page quote here

2. Understand that there are ethical considerations and obligations when managing or processing. (<https://www.oii.ox.ac.uk/news/releases/what-is-data-ethics/>)
 - a. how data is generated, recorded and shared
 - b. devising responsible innovation and professional codes to guide ethical practice
3. Data Privacy in jurisdictional context
 - a. Understanding your own context / jurisdiction
 - b. Understanding other contexts / jurisdictions that you and your data might be connected to
4. Understand who owns or has access to your data and what they will use it for.
5. Understand the risks and benefits of allowing your data to be used in each data driven system. Strategies for identifying risks e.g. combining data-sets.
6. Understand, and have access to, the inferences that are made from the analysis of your data. Be able to understand how your data is being analysed to draw inferences. Be able to judge some of the validity of this use. Understand that there is always a level of uncertainty and imprecision; that determinations reflect probability and are not definitive judgements.
7. Understanding what your digital footprint looks like and how to manage it (data detox; twitter deletion).
8. Understand how to resist/subvert/control the uses of your data (deliberate obfuscation might be your best strategy).
9. Be able to manipulate data - understand various forms of data (including statistics and visualisation skills)
10. Understand systematic bias in data and algorithms (Frank Pasquale et al.)

Still to do ...

- Establish how to gather more information about student perspectives?
- Conduct desk-based research to summarize the content of current data literacy initiatives - demonstrate that there is a gap in the market in this space.
- Define how this would articulate with learning analytics co-design activities within institutions - how would it be used in practice?
- Identify list elements that would be required reading for those presented with a consent agreement
- The arrangements of “levels of depth” of learning materials per list element outlined
- Resources need to be as widely applicable as possible - simple plain language is going to be essential.

“Data Literacy” Links -

[Data-Pop Alliance](#)

[MANTRA from EDINA \(Research Data Management Training\)](#)

[APS Data Literacy - Australia](#)

[ANDS Data Literacy and Outreach](#)

Authors

Anne-Marie Scott - University of Edinburgh

Ian Dolphin - Apereo Foundation

Greg Thompson - Queensland University of Technology

Live version of this doc is at:

<https://docs.google.com/document/d/16HtjZZT8EUDIXo3r8tS4Rk3BD3PFj2x-JTgkn5ddms/>