A Learning Analytics Data Literacy Playground

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ABSTRACT: This paper proposes a **Hackathon Research Question**. An emerging challenge for learning analytics solutions concerns the lack of data literacy in both the academic and student populations. As we create more data and analytical models, can the people using them understand what they mean? Do they understand the risks associated with sharing their data? In alignment with the emerging field of critical data studies, there is an increasing need to develop an awareness among our students of the potential uses of their data and the possible consequences including the development of tools that support this work. We first proposed the concept of a data playground in the 2017 Hackathon. For LAK18, we return to this idea and challenge participants to translate some of the initial ideas into demonstrable outputs.

Keywords: Data literacy, digital literacy, ethics, digital understanding

1 INTRODUCTION

An emerging challenge for learning analytics solutions concerns the lack of data literacy in both the academic and student populations. As we create more data and analytical models, can the people using them understand what they really mean and do they understand the risks associated with the ways their data is being used?

The LAK18 Conference asks:

- Which design processes involve learners, educators and other users effectively in the co-design of analytics tools?
- Which techniques are effective in assessing how end-users make sense of, interact with, and act on analytics feedback?
- In what ways can learning analytics systems be biased, and can they be made more transparent and accountable to different stakeholder groups?
- How are educational leaders creating the conditions for learning analytics systems to take root and grow?
- How strong is the evidence that the adoption of learning analytics benefits stakeholders?

(LAK18, 2017)

We argue that before these issues can be tackled within institutions and research projects, thought must be given to how to best build critical data literacy skills with collaborators and stakeholders. In

alignment with the emerging field of critical data studies, there is an increasing need to develop an awareness amongst our students in particular of the potential uses of their data and the possible consequences (Pangrazio and Selwyn, 2017). More information about student perspectives of learning analytics needs to be gathered to better inform learning analytics implementations and algorithms need to be open to interrogation (Knox 2017a). Skills for working with and interrogating data itself need to be built, rather than focusing solely on outputs and visualisations (D'Ignazio and Barghava, 2016). Successful co-design of analytics tools, for example, requires that students have a baseline level of understanding as to what data about them are being collected and what they could be used for both within educational institutions and beyond. Underlying assumptions about trust, ethics and duty of care also need to be articulated, balanced and understood.

2 LEARNING ANALYTICS DATA LITERACY PLAYGROUND DESCRIPTION

We propose as a challenge for the LAK18 Hackathon the creation of a "Learning Analytics Data Literacy Playground." This follows on from, and builds upon thinking that emerged from the LAK'17 Hackathon (Dorey-Elias 2017). We envisage that this challenge would include the development of synthetic data sets that mirrors data gathered while a student including VLE data, student record data, attendance monitoring data, etc. Students may be able to optionally include social media feeds (their own, or potentially another synthetic data set). A user interface or set of tools that allows students to interrogate, experiment with, and build on this data would then be developed. The playground should have some basic structure or set of tasks in place that scaffold initial activities and provide an easy route into exploration. It should challenge assumptions and reveal potential insights from data that may not be immediately obvious. It should also collect insights from students through in-built feedback mechanisms such as asking questions at key points, or recording decisions made.

Students interrogation and exploration of the playground could in itself be a source of more insight. This should be considered in the design. For example, at the end of a session, the system could display a summary of activities completed for the student. This information might include how similar their interrogations were to those of other students, and allow them to generate some sort of a "receipt" for their activity, or alternately, allow them to delete all trace of their activity. The playground could also include insight into the legal basis for data collection and processing based on selection of a country profile.

The purpose of the playground should not be to scare, but rather to educate students. Interaction with the playground should be engaging, and playful if possible (see for example https://dataselfie.it/#/ or https://applymagicsauce.com/). It could be modelled on a "choose your own adventure" branching pathway; it could be an interactive dashboard on which many of the inputs and outputs can be calibrated by the end user. Exploring the interface design choice will be as important as the manipulation of data in terms of developing something that students can interact with, make sense of, and act upon.

This challenge has a broad scope and so the initiation activity will be for participants to identify use cases, and then agree a small number on which the rest of the Hackathon activity will be focused.

3 LEARNING ANALYTICS DATA LITERACY PLAYGROUND IMPACT

We see the Data Literacy Playground as having a range of potential uses including:

- To support learning activities in a wide range of academic courses related to digital and data literacies and digital cultures.
- As an orientation exercise at the start of any co-design activity within an organization.
- To improve student understanding as to the types of data typically gathered about them and how it might be used, including among services not associated with the academic institution.
- To build a better understanding of informed consent for the use of services.
- As a research tool to further gather insight into student attitudes to learning analytics.

We are excited about this opportunity to advance the development of a tool through which students would be empowered to "read, work with, analyze and argue with data as part of a larger inquiry process" (D'Ignazio and Barghava, 2016).

REFERENCES

D'Ignazio, C., & Bhargava, R. (2016). DataBasic: Design Principles, Tools and Activities for Data Literacy Learners. *The Journal of Community Informatics, 12*(3). Retrieved from http://ci-journal.net/index.php/ciej/article/view/1294/1229

Dorey-Elias, T. (2017). *Building a digital literacy playground – an emerging idea*. *Here to there*. Retrieved from https://heretothere.trubox.ca/building-a-digital-literacy-playground-an-emerging-idea/

Knox, J. (2017a). Data Power in Education: Exploring Critical Awareness with the "Learning Analytics Report Card". *Television & New Media*, *18*(8), 734-752. doi: 10.1177/1527476417690029

Knox, J. (2017b*).* Playing with student data: The Learning Analytics Report Card (LARC). In S. Shehata, JP-L Tan (Eds.), *Practitioner Track Proceedings of the 7th International Learning Analytics & Knowledge Conference,* 43-49.

LAK18 (2017). General Call, The 8th International Conference on Learning Analytics & Knowledge Learning Analytics and Knowledge 2018 [web log post]. Retrieved from https://latte-analytics.sydney.edu.au/general-call/

Pangrazio, L., & Selwyn N. (2017). 'My Data, My Bad ...': Young People's Personal Data Understandings and (Counter)Practices. *Proceedings of the 8th International Conference on Social Media & Society,* 1–5. doi: 10.1145/3097286.3097338