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Accessible Learning, Accessible Analytics: a Virtual Evidence Café

Papathoma Tina, Rebecca Ferguson, Dimitrios Vogiatzis

The Open University, UK

Tina.Papathoma@open.ac.uk, Rebecca.Ferguson@open.ac.uk,

Dimitrios.Vogiatzis@open.ac.uk

ABSTRACT: Learner accessibility is often thought of in terms of physical infrastructure or, in the case of online learning, guidelines for web design. Learning analytics offer a new set of possibilities for identifying and removing barriers to accessibility in learning environments. This is not simply a matter of designing analytics tools to be more accessible, for example by catering for learners who need extra time to respond, reducing cognitive load, or choosing an appropriate colour palette. When it comes to increasing access to learning opportunities for people with disabilities, solutions must be developed in the field of learning analytics. This workshop is a step towards developing those solutions. It will take the form of an evidence café, a structured event in which participants will be split into groups to discuss technical and pedagogic approaches to accessibility, as well as the barriers faced by disabled students and educators, and the associated challenges faced by those who design and research learning analytics. The intended outcomes of this workshop are to raise awareness of accessible learning and accessible analytics, and to build a community of researchers to lead future development in the area of accessible analytics.

Keywords: Accessibility, disability, evidence café, inclusion, learning analytics

1 BACKGROUND

Students with disabilities are less likely than other students to complete their studies, go on to complete higher degrees, or secure graduate employment (Mamiseishvili & Koch, 2012). This disparity is evident when large datasets are used to examine success and completion rates, segmenting findings using demographic filters. In such studies, many of which predate the emergence of learning analytics as a field, disability is one variable among many (Tinto, 1997).

Learning analytics, with its goals of ‘understanding and optimising learning and the environments in which it occurs’ (Long & Siemens, 2011, p34) offers the possibility of identifying and removing barriers to accessibility in learning environments. There are two elements to this work. First, it is important that learning analytics tools do not introduce new accessibility issues. Second, analytics should be designed to increase access to learning opportunities.

Accessibility is often thought of in terms of the guidelines set out by the W3C web standards body, and that web accessibility means ‘people with disabilities can perceive, understand, navigate, and interact with the Web, and that they can contribute to the Web’ (W3C, 2018). By extension, learning analytics tools and dashboards can be considered accessible if people with disabilities can perceive, understand, navigate, interact with them and contribute to them. One aspect of this work is technical – designers will take accessibility into account when adding buttons and visual elements,

deciding on colours, contrast, fonts and font size. Another aspect requires more thought about usability; does the tool cater for learners who need extra time to make responses; reduce cognitive load as far as possible; and remove triggers of anxiety? (Lister et al, 2020)

General principles and standards may be applied to technical and usability elements. When it comes to increasing access to learning opportunities for people with disabilities, solutions must be developed in the field of learning analytics. Three strands of work indicate potential ways forward. Work presented at LAK16 indicated some of the ways in which analytics might be used to contribute to disabled students' learning, initially by using large datasets to identify courses on which students with declared disabilities had significantly lower success rates than other students (Cooper, Ferguson, & Wolff, 2016).

Development of conversational user interfaces (chatbots) has highlighted how language – use of jargon, overuse of abbreviations, and the introduction of confusing terms – can all present barriers to learners with cognitive disabilities, mental health issues, or some types of learning difficulty (Lister, Coughlan, Iniesto, Freear, & Devine, 2020). Elsewhere, work on serious games has pointed to ways in which learning analytics could be used to provide support for people with intellectual disabilities, personalising learning pathways and flagging when key areas of content have not been accessed (Nguyen, Gardner, & Sheridan, 2018).

1.1 Motivation

This workshop will identify ways of making both analytics and learning more accessible to people with disabilities. Disability is here taken to relate to 'barriers created by catering to assumptions about what most people can do. Disabilities include physical, cognitive, motor or mental difficulties/impairments, as well as barriers associated with factors such as dyslexia and age. People also face barriers when a course is not in their preferred language. Disability may involve technological or pedagogical barriers to learning' (Papathoma, Ferguson, Iniesto, Rets, Vogiatzis & Murphy, 2020).

1.2 Relevance to the conference theme

This workshop relates directly to the contribution that learning analytics can make to learning. It is concerned with an ethical aspect of learning analytics, the need for an equitable approach that takes account of the needs of all learners.

2 WORKSHOP OBJECTIVES AND INTENDED OUTCOMES

The workshop objectives are to explore the elements about both technical and pedagogic approaches to accessibility, as well as the barriers faced by disabled students and educators, and the associated challenges faced by those who design and research learning analytics. The Evidence Café approach seeks to bring together researchers and practitioners, those with theoretical knowledge and those with expert practical knowledge; those who have encountered barriers to accessibility and those who are working to remove those barriers. The intended outcome is to raise awareness to researchers and practitioners to accessible learning and accessible analytics with an underlying goal to build a community of researchers to lead future development in the area of accessible analytics.

3 WORKSHOP ORGANISATION

This will be a half-day open interactive workshop event, open to any interested LAK delegate, which will take the form of an Evidence Café. These are informal workshop-style events where expert participants are split into groups to discuss an issue guided by a discussion object, which is used to facilitate meaningful conversations between practitioners and academics (Clough, Adams, & Halford, 2017). The discussion object gives participants a shared language to discuss the topic at hand. In order to complete the associated facilitated activities each participant must have the opportunity to voice their thoughts. This participatory method supports the translation of research into practice, supporting a deep understanding of the use of evidence in practice, and providing a forum for knowledge exchange. The workshop seeks to have 3 groups of 5 attendees maximum so that it will be possible to facilitate online discussions.

The Evidence Café approach is well suited to LAK because it is a workshop approach that is designed to bring together researchers and practitioners, those with theoretical knowledge and those with expert practical knowledge; those who have encountered barriers to accessibility and those who are working to remove those barriers. It provides opportunities for structured conversations and the sharing of knowledge, and its combination of informal interaction and facilitated discussion has been shown to work well in an online environment (Papathoma et al., 2020).

In this workshop, the discussion object will be an accessibility analysis of an existing learning analytics tool. This will be used to prompt discussions about both technical and pedagogic approaches to accessibility, as well as the barriers faced by disabled students and educators, and the associated challenges faced by those who design and research learning analytics.

3.1 Schedule

In this half day workshop/evidence café the proposed schedule includes

- a short introduction to evidence cafés (30 min)
- an introduction to each other -ice breaker activity (30 min)
- Activity 1: What are the technical and pedagogic approaches to accessibility in the Learning Analytics tool example you were given as a discussion object? (30 min discussion amongst individual groups and 20 min sharing with all groups)
- Activity 2: What enables and/or hinders the accessibility analysis of the learning analytics tool you were given as a discussion object? (30 min discussion amongst individual groups and 20 min sharing with all groups)
- Wrap up (10 min)
- Feedback on the evidence café (10 min)

3.2 Organisers

A group of scholars with previous experience of organizing workshops and Evidence Cafés in virtual settings. We come from institutions that are committed to making learning more accessible.

3.3 Workshop website and publicity

The workshop will be publicized using social media, including both Twitter and LinkedIn, using the hashtag #LAK21Accessibility. The workshop website can be found [here](#). It provides details of the event and will also be used for an initial presentation of outcomes. Full outcomes of the workshop will be written up and submitted to the Journal of Learning Analytics.

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