SASLAS19:
Scalability and Sustainability of Learning Analytics Solutions.

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ABSTRACT: Research about Learning Analytics has increasingly gained attention, as demonstrated by the geographic and substantive scope of LAK. However, as the domain of LA is maturing, the connection of research to long-term applicability is relatively underdeveloped. This may hinder further investment of policy makers and administrators. The goal of our half-day workshop is to explore and discuss the scalability and sustainability of existing and proposed solutions, and to initiate the creation of a framework of strategies available to researchers and practitioners.

Keywords: learning analytics, sustainability, scalability

1 WORKSHOP BACKGROUND

While Learning Analytics (LA) is still a relatively young discipline, it is quickly expanding, both in substantive scope and geographic interest. At each edition of the LAK conference, several promising results are being shared. However, in many cases LA tools demonstrate difficulties in making the transition from research artefacts into scalable solutions in real-life educational contexts. Research papers generally do not address the issues of scalability and sustainability of proposed solutions extensively, if at all, leaving practitioners with unclear guidelines to apply them in non-experimental settings. Therefore, while the domain of LA is maturing, we posit that the connection from research
to long-term applicability is relatively underdeveloped. This may hinder further investment of policy makers and administrators.

**In this workshop, we want to discuss the issues and opportunities of scalability and sustainability on several dimensions, including:**

1. **Generalizability:** not uncommonly, LA research takes place in favorable settings, e.g. involving a researcher-teacher with detailed knowledge of the specific course, or other highly motivated stakeholders. While an experiment-friendly context may be a valuable incubator for innovative LA solutions, it does not test or harden them for real-life applicability at scale. We would like to invite researchers to address this issue when presenting their own work, or to start from existing work to explore its reproducibility in challenging contexts.

2. **Return on investment:** several authors have raised questions about the impact of LA applications on learning (e.g. Dyckhoff et al. 2013, Dawson et al. 2017), something that may be difficult to measure. However, it has recently been argued that impact is only part of the equation when making a business case (Broos et al. 2018). As LA projects are likely to end up competing for resources with other proposals, LA researchers need to include return-on-investment (ROI) in their reasoning. LA solutions that require only limited effort can be attractive, even if the expected impact is relatively low or even uncertain. Vice versa, LA projects that would require significant investment will be challenged with higher expectations. The workshop aims at creating awareness in the LA community to this consideration.

3. **Change management:** even if issues of generalizability and ROI are addressed by LA projects, chances of sustainable and scalable implementations are limited without acceptance of learners, teachers and other stakeholders. Even the best models and feedback tools are of little use if they are not acted upon due to a lack of trust or willingness. Therefore, LA needs to address transparency, openness and understanding of user acceptance. Underestimation of the importance of institutional culture, resistance to innovation and the role of change management poses a big treat for success of LA within institutions (Macfadyen & Dawson 2012). Many lessons learned in general change management should not be ignored by the LA community and several change management frameworks are available for reuse. The ADKAR model, for instance, provides insight into five stages: awareness, desire, knowledge, ability and reinforcement (Hiat 2006). Similarly, several maturity assessment models have been developed in management science and information systems literature. It has been argued that institutions should build their LA maturity layer by layer, starting with modest implementations (Broos 2017).

2 **ORGANIZATIONAL DETAILS**

2.1 **Type of event**

The half-day workshop includes consecutive phases of increasing participant activity, including jigsaw group work sessions, collaborative discussions and flipped presentations of other participants work.
2.2 Proposed schedule

- First the organizers will set the scene with a short introduction (max. 25 minutes).
- Next, participants will be grouped across submitted work, allowing respective authors to briefly explain their work with a focus on scalability and sustainability (max. 25 minutes).
- The group then delegates one person to present another’s work to the entire audience using an interactive demo or mockup of the solution, critically reflecting within the theme of the workshop (max. 5 x 10 minutes).
- New (jigsaw) groups will be formed to discuss and co-develop a framework of strategies to include the scalability and sustainability aspects in LA. Previously presented work will be mapped on these strategies – identifying strengths and weaknesses (max. 2 x 25 minutes).
- In conclusion, each group will present their framework and mappings to the entire audience, while a facilitator will merge the different outcomes in a shared representation for participants to discuss and comment on (max. 5 x 5 minutes).
- An observer appointed at the beginning will summarize the workshop (max. 10 minutes).

Based on the actual number of accepted submissions and participants, the scenario of the workshop will be adopted. Several scenarios will be prepared on beforehand to guarantee the workshop’s usefulness and quality in case of low or high attendance. Several co-hosts will be present to facilitate the workshop and to ask probing questions and introduce statements during group discussions.

2.3 Target group and recruiting of participants

The first target group of the workshop are researchers that are actively publishing about LA solutions. The workshop invites them to assess their own or other’s work from a scalability and sustainability perspective and provides them with a contribution channel to extend previous studies. For this purpose, participants are invited to submit a paper. In accordance with the workshop format, these papers will be accompanied by demo material, mockups or other artefacts to allow the flipped presentation by another participant (cf. supra). Submissions will be reviewed by a committed team of senior and junior researchers.

The second target group are policy makers, practitioners, student representatives, managers, and other stakeholders that either have hands-on experience with successful or unsuccessful implementations of LA at scale, or are exploring the opportunities. They will be invited to participate in the workshop discussions with a critical but constructive view.

Both target groups will be informed about the upcoming workshop through a dedicated website and invited using social media and the organizers’ networks.

2.4 Required equipment

The workshop assumes availability of a HD-projector, a white-board and/or flipchart and large sheets of paper and markers (preferably multiple flipcharts or adhesive paper sheets).
3 OBJECTIVES AND PLANNED OUTCOMES

The intended outcome of the workshop is threefold:

1. The call-for-papers will invite participants to tackle the concern of scalability and sustainability of LA explicitly in their submissions. We welcome papers building on existing work, extending it by addressing the theme of the workshop, which was often overlooked in previous publications.

2. Participants will contribute to the ideation phase of a reusable framework of strategies to include the scalability and sustainability aspects in LA. It is intended to continue building this framework after the workshop and to present it to the community.

3. The ultimate intention of the workshop is to contribute to the domain of LA by creating awareness of long-term applicability at scale, opening the discussion, and identifying points of future work. To further concretize this, three points of immediate action will be agreed upon in conclusion of the workshop.

4 ABOUT THE ORGANIZERS

The workshop will be co-hosted by a group of researchers that have recently voiced their concerns about scalability or sustainability of LA and/or have shared concrete steps of how they accounted for the matter when applying their work at larger scale.

REFERENCES


