

What role can Learning Analytics play in supporting university students to set goals for their own learning journey

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ABSTRACT: This paper aims to create an opportunity for educational researchers and practitioners to explore how Learning Analytics (LA) can effectively support university students to set and achieve their learning goals. Goal-setting is thought to enable students to become skilled self-regulated learners, and in the long-term self-directed adult learners. This psychological and developmental process can be better understood and supported with the help of well-designed LA tools. LA has great potential in providing timely information on goal achievements. In particular, open source frameworks and learning tools start to show some advantages in efficiency and greater degree of customisation. However, hurdles are present in the development of such tool sets. Disciplinary differences, institutional infrastructure, and organisational culture all play a catalyst role in the process. The authors provide two scenarios in the contexts of university library services and a university medical program. The first scenario raises the question of whether or not an API recipe a realistic objective, in light of the diversity of infrastructure settings and system adoptions across institutions, as well as differences in policy and governance. The second scenario attempts to investigate the meaning of goal-setting in an assessment driven educational experience, and how LA can help provide greater insight into students' psychological momentums along the learning journey. The authors hope the two scenarios to create an avenue for ongoing collaboration for new solutions to emerge.

Keywords: goal-setting, library services, medical education, API, open-source, Learning Analytics

1 BACKGROUND

As our societies are proceeding into the 21st century, technology and Big Data in education is not only radically changing the way we learn but also the strategies we choose to learn. As such, citizens' skills and competences to learn how to learn are identified as critical by researchers (Ramsden, 2003) and policy makers (EUR-LEX, 2017) alike. These skills and competences are crucial to success both in education and the workplace. From the learner's point, to become a self-regulated learner [Dale, Schunk & Zimmerman, 2013] has never been as important as it is today [Ames & Archer, 1988], when learning, regardless of whether it is formal or informal, needs to follow individual learning strategies. More focus should be directed towards individual student perspectives (Ferguson, 2012), and also to the social and technical context of learning (Shum & Ferguson, 2012).

Goal-setting, as an important dimension of Self-Regulated Learning (SRL) forehead stage, was the discussion focus in the Goal-setting workshop at Learning Analytics and Knowledge Conference (LAK) 2016. Participants suggested that GS should be an integral part of designing learning interventions (Wise et al., 2014). They also discussed the limited organizational uptake of GS, despite its demonstrated effects on study success. There is also evidence that learning analytics dashboards aid the visualization and internalization of learning goals and objectives (Scheffel et al., 2014; Verbert et al., 2014). Following the GS workshop and subsequent research work, this paper aims at continuing the conceptualization of GS and Learning Analytics (LA) interface [Mol et al., 2016]. The following scenarios in different university contexts serve this purpose by 1. Highlighting the potential of an 'API recipe' in library services that could help learners to formulate their learning and thinking strategies with real-time customized and holistic feedback; 2. Exploring possible avenues where learning analytics can cater for a given disciplinary education e.g. Medical education, where students are expected to achieve external goals set by the educators.

2 TWO SCENARIOS

Case I: Library

Discussions about library services in relation to LA are rare. Studies were looking at academic performance of students in relation to their activities in the libraries (Jantti et al. 2013; Soria et al. 2013). This limited interest in libraries is interesting, especially in the light that libraries are one of the places where actual learning takes place. Besides storing books and other printed and electronic content, libraries provide physical and virtual spaces for learners to interact with that content. Libraries also provide physical and virtual spaces to support interactions between learners (e.g. group discussion rooms) and also have vast amount of information about content searching behaviors.

For this reason, it might be very valuable to incorporate data coming from library systems into analytics of learning. However, as it was stated above, the available knowledge about pulling data from library system for LA is very limited. Therefore, the authors suggest that LAK18 hackathon participants try to 1, thinking about usable and feasible data sources about learning in libraries and 2, conceptualize possible requirements of integrating those datasets into LA. Ideally, these requirements should aim towards defining xAPI recipe(s) about activities learners are carrying out in libraries. Since a great number of educational and analytical software providers adopted successfully xAPI, delivering library services/learning related xAPI recipes might contribute to a faster uptake of library data in LA.

Case II: University medical programs (Medical education)

Medical education presents two unique characteristics in educational design. Firstly, unlike students enrolled in any other disciplinary programs, Medical students must go through the same 'channel' to become a doctor, that units of study are highly structured and mandatory. It represents a typical mastery learning experience, where students are expected to achieve goals set by educators. Secondly, assessment is traditionally 'big'. In the case of the Sydney Medical Program, end-of-year assessment tasks are designed to test whether or not the student's performance is satisfactory. The assessment outcome determines whether or not the student passes the whole year. In other words, assessment in medical education is the top driving force of student learning.

However, as the notion of assessment is evolving in the HE sector, programmatic assessment is gradually introduced into medical programs. In response to this change, assessment tasks are becoming more diverse. They can be designed to enable students to self-reflect, and self-evaluate their learning progress and direct their effort towards their personal learning goals. More importantly, students have some autonomy in making decisions for their learning, particularly in the increasingly popular self-directed online learning modules. In addition, the clinical schools that students are assigned to will benefit from in-time, detailed and accurate information to monitor the logistic aspects e.g. time-tabling, staffing, to provide personalized clinical learning experience for students, and to improve curriculum. As such, the value of LA in medical education increases. Information gathered by analytics tools has the potential to create an understanding of the holistic program experience for educators and students that allows them to be more proactive and to prioritize actions.

Based on the traditions of medical education and the directions it is moving toward, LA presents good opportunities to address two immediate problems – 1. How do educators provide timely and appropriate assessment feedback to students that they can carry forward into their learning plans; 2. What kinds of information is meaningful for educators and students with respect to the student's personal development to become a skilled self-regulated learner.

3 RESEARCH QUESTIONS & CALL FOR COLLABORATION

Based on scenario 1 and 2, the authors aim to initiate a conversation in the Hackathon event at LAK18 by raising the following research questions

1: What library related (collected) datasets are useful when it comes to learning? How can those datasets contribute to relevant LA methods? How library data can help learners to be better in SRL? And how library data can help teachers to design instructions/interventions?

2: What data is required to provide personalized assessment feedback to medical students? How should these sensitive data stored and managed in a university medical program? What's the impact of policy and data governance on the development of open source tools for the aforementioned scenarios? An example of the Sydney Medical Program will be provided in the workshop as the baseline.

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