

2015 Learning Analytics and Knowledge (LAK) Conference

Practitioner Track Submission Form

Instructions: Please review the full proposal submission instructions and requirements on the LAK15 conference web site at: <http://lak15.solaresearch.org/practitioner-instructions>.

Presentation/Panel/Showcase Title:

Scalability and Flexibility through Open Research

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Abstract (up to 100 words*):

Delft University of Technology (TUD) is the largest university of engineering sciences in the Netherlands. TUD has been an active member of the Open Resources Movement since 2007 and in 2012 it has joined the EdX consortium. Openness in research and education is central in the TUD mission. It was the first edX partner to issue all its MOOCs under a creative commons license. In this presentation, we present our open research approach and toolbox. This toolbox facilitates sharing of data and the process of collaborative research in the context of MOOCs/online education. The presentation explains our rationale for open research, and our experiences with the toolbox, including research highlights.

Keywords (up to 10):

open research, toolbox, collaboration, stakeholders, data cleaning, learning analytics, privacy, ethics, methodologies

Expected Learning Outcomes (at least 3):

1. Rationale for and potential of open research in/with online courses/MOOCs
2. Methodologies and research flow (including instrument design, data collection and interpretation, data sharing, and institutional integration)
3. How to organize collaborative, open research and share data
4. Embedding open research in an institutional setting

Full Presentation Description (up to 750 words*):

The presentation will address our experiences with an open research approach for research with and into online education, in particular MOOCs. Five collaborative research projects have resulted in a framework that helps Delft University of Technology to facilitate and streamline research with experts from all over the world as well as local researchers and Master students.

We explain our reasons for, experiences with, and outcomes of open research in the context of MOOC research. The approach is relevant for similar institutes who - with a move towards open and/or online learning – may not possess the resources or expertise to evaluate or research the student and course data.

Rationale

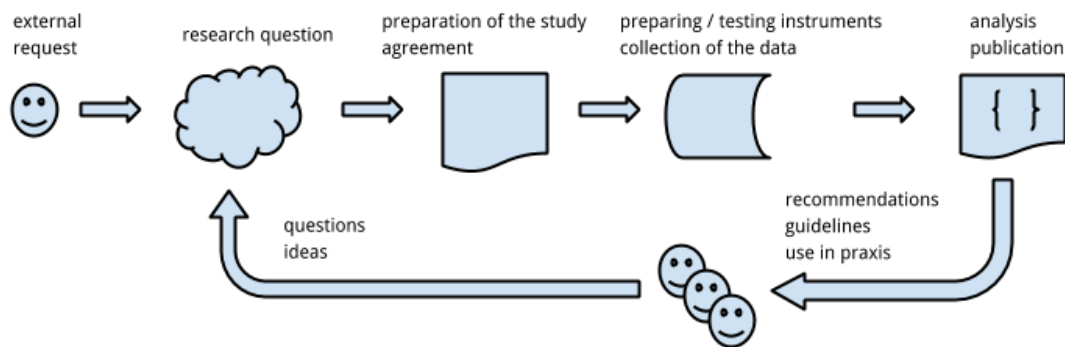
Online learning was a relatively new phenomenon for TUD and most other traditional (campus-based) educational institutes like TUD. Research is one of the drivers for better local understanding of the quality and potential of online learning. Lessons learned and new insights should find its way into course design and delivery. In addition to a need for research, there is an opportunity: the nature of online learning, and in particular MOOCs, implies the opportunity to conduct research (experiments) with large groups of students and collect enormous quantities of student and course data.

Hence, in the context of a relatively limited budget for research, little history in educational research within the university, and an ever-growing mountain of data and instruments being left untapped, an open research approach was developed. Open research means doing research in a more open way, and explicitly involves external researchers to analyze our data, design experiments, and produce results that are relevant for DUT. For our university, such an open and networked approach seems to be more appropriate because

- i. it allows us to scale our educational research faster with fewer investments,
- ii. to be flexible and specific in what we want to research, and
- iii. to build a relevant research network in the process.

Data produced by MOOCs (and other online courses) become useful for practitioners only when the analysis produces outcomes that can be applied in

their daily practice. It requires an embedding of the data outcome in the workflow to support the teachers in their decision making for the improvement of the teaching and learning process. In the past year, we have developed an integrated workflow, and instruments, to conduct facilitate monitoring, evaluation, and research in and on MOOCs. A simplified overview of this process can be seen in the image below. A new research project is often kick-started by a local need (i.e. 'less female dropouts') and/or external expertise. It has to carry local support, most importantly by teachers involved. We developed a toolbox that supports this process, which we are currently implementing this in the institutional context (i.e. addressing integration into staff development and support processes).



The Open Research Approach

Our approach is rooted in design based research, which is a systematic but flexible methodology aimed at improving educational practices through iterative analysis, design, development, and implementation, based on collaboration among researchers and practitioners in real-world settings and leading to contextually-sensitive design principles and theories (Wang & Hannafin 2005).

Our presentation will explain the contents of and experiences with the toolbox, which includes the following:

- 1) Documentation for prospective partner
 - a) Overview of the data and instruments that have been developed and available to prospective partners
 - b) Overview of MOOCs in the coming period
 - c) Description of the collaboration infrastructure
 - d) Overview of additional services that may not be free (for example data crunching, software development, interviewing teachers, etc.)

- e) Memorandum of Understanding on use of data and shared publications
- 2) Research details to be filled in by prospective partner
 - a) Summary of the research, intended outcomes, and the scientific and practical relevance.
 - b) Structure for the research outcome
 - c) Detailed research setup + planning

In addition, we aim to publicly share our datasets and analysis code so other can use and improve it, and also replicate our own research.

Research projects

In our presentation, we will also shortly highlight some of the partnerships and projects, including

- Self-Affirmation interventions (Stanford and Univ. of St Barbara) across 6 MOOCs;
- Pedagogy and forum facilitation in 5 MOOCs (Univ of Southern Australia);
- Concerns over privacy (Master student @ TUD);
- Gender/diversity in MOOCs (Univ. of Munich);
- Community of Inquiry (Simon Fraser Univ.).

The innovative element of this approach is that - by actively facilitating the use of our data - we are able to collaborate with world-class experts to answer questions that are relevant for our university. We have experienced that collaboration is complex, and our model intends to reduce this complexity. Considering that in the past year - for both evaluation and research - only 0.8 FTE was allocated, the above results show the productive potential of openness in research.