

1st International Workshop on Learning Analytics and Linked Data

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ABSTRACT

The main objective of the 1st International Workshop on Learning Analytics and Linked Data (#LALD2012) is to connect the research efforts on Linked Data and Learning Analytics in order to create visionary ideas and foster synergies between both young research fields. Therefore, the workshop will collect, explore, and present datasets, technologies and applications for Technology-Enhanced Learning (TEL) to discuss Learning Analytics approaches that make use of educational data or Linked Data sources. During the workshop, an overview of available educational datasets and related initiatives will be given. The participants have the opportunity to present their own research with respect to educational datasets, technologies and applications and discuss major challenges to collect, reuse, and share these datasets.

Categories and Subject Descriptors

E.1 [Data Structures] *Distributed data structures*; E.2 [Data Storage Representations] *Linked representations*; J.1 [Administrative Data Processing] *Education*; H.1.1 [Information Systems] *Models and principles, Systems and Information Theory*; J.4 [Social and behavioural sciences].

General Terms

Algorithms, Measurement, Design, Standardization, Human Factors, Theory, Legal Aspects.

Keywords

Linked data, Learning analytics, Educational datasets, privacy, ethics.

1. WORKSHOP BACKGROUND

In Technology-Enhanced Learning (TEL), a multitude of datasets

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LAK'12, 29 April – 2 May 2012, Vancouver, BC, Canada.
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exists that offer new opportunities for teaching and learning. The available datasets can be roughly distinguished between (a) Open Web data to (b) Personal Learning data originating from different learning environments.

Open Web data covers educational data publicly available on the Web, such as Linked Open Data (LOD) published by institutions about their courses and other resources; examples include (but are not limited to), e.g. The Open University (UK), the National Research Council (CNR, Italy), Southampton University (UK), or the *mEducator* Linked Educational Resources. It also includes the emergence of LD-based metadata schemas and TEL-related datasets. The main driver for the adoption of the LOD approach in education is the enrichment of the learning content and the learning experience by making use of various connected data sources.

Personal Learning data from different learning environments originate from tracking learners' interactions with different tools and resources. The main driver for analyzing these data is the vision of personalized learning that offers potential to create more effective learning experiences through new possibilities for the prediction and reflection of individual learning processes.

To this end, Learning Analytics can be seen as an approach which brings together two different views: (i) the external view on publicly available Web data and (ii) an internal view on personal learner data, e.g. data about individual learning activities and histories. Learning Analytics aims at combining these two in a smart and innovative way in order to enable advanced educational services, such as recommendation of suitable learning resources to individual learners.

To enable synergies and alignment of those efforts, communities like the Special Interest Group (SIG) dataTEL of the European Association of Technology Enhanced Learning (EATEL) and the LinkedEducation.org open platform, emerged very recently. The SIG dataTEL aims at advancing data-driven TEL research and to develop a body of knowledge about personalization derived from analyzing and visualizing personal data sourced from learning environments. Connecting information extracted from such personal tracking data with the Web of (Linked Open) Data offers interesting perspectives to enrich learning processes with suitable resources available on the Web.

The main objective of the LALD workshop is to connect the research efforts on LinkedData and Learning Analytics to create visionary ideas about how the synergy of a Web of Data and Learning Analytics can transform and support TEL processes and applications. Therefore, the workshop will explore, collect and review datasets for TEL to discuss Learning Analytics approaches which make use of the Web of Data. During the workshop, an overview of available educational datasets will be given. The participants will have the opportunity to present own datasets or dataset descriptions, show their own data products and tools, and discuss major challenges to collect, use and share educational datasets and their products. Different promising initiatives and solutions for the above mentioned challenges will be presented.

2. WORKSHOP OBJECTIVES

The main objective of the LALD workshop is to foster a research network around educational data issues and Learning Analytics. The workshop will contribute to the following main challenges of the SIG dataTEL and the Linked Education platform:

1. Educational Datasets:

- Evaluating, promoting, creating and clustering of educational datasets, schemas and vocabularies.
- Feasibility of standardization of educational datasets to enable exchange and interoperability.
- Facilitating the sharing of educational datasets among TEL researchers in general, and researchers in the Learning Analytics field, in particular.

2. Data Technologies:

- What technologies are available for the exploration of educational datasets, i.e., for filtering, interlinking, exposing, adapting, converting and visualizing educational datasets?
- What are the real-world applications that show a measureable impact of Learning Analytics and thus successfully promote the field to target groups?
- Which tools are available to use and exploit educational Linked Open Data?
- Which innovative TEL applications make large-scale use of the available open Web data?

3. Evaluation of Technologies and Datasets:

- Fostering standardized evaluation methods for Learning Analytics.
- Discuss the need of data competitions similar to TREC and CLEF to compare TEL research and guide people in evaluating and comparing their results.

4. Privacy and Ethics:

- Contributing to policies on ethical implications of using the educational data for learning analytics (privacy and legal protection rights)
- Suggesting guidelines for the anonymisation and sharing of educational data for Learning Analytics research.

3. WORKSHOP FACILITATORS

The workshop will be organized jointly by the Linked Education initiative (<http://linkededucation.org>) and the SIG dataTEL (<http://bit.ly/datatel>) of EATEL. Both, the Linked Education and

the SIG dataTEL aim at advancing data-driven research in TEL. The main goals are to promote the re-use of public Web data, to foster the cooperation between different Learning Analytics research units and to act as a representative to other relevant communities.

Both initiatives can look back on an annual workshop series at different conferences:

- RecSysTEL workshop with the 1st dataTEL marketplace jointly at the ECTEL and the ACM Recommender Systems conference in Barcelona (<http://bit.ly/datatel10>).
- dataTEL11 at the 3rd Alpine Rendes-vous conferences in La Cluaz, France (http://bit.ly/datatel_arv11).
- Linked Learning workshop at the 8th Extended Semantic Web Conference (<http://purl.org/linkedlearning>).

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