

# Linked Learning 2016 - Learning and Education with the Web of Data

Distance teaching and openly available educational resources on the Web are becoming common practices. Public higher education institutions as well as private training organisations increasingly realise the benefits of online resources. In addition, informal learning and knowledge exchange are inherent to the online interactions found on the Web in general. These interactions involve, for instance, learning and knowledge-centric social networks – such as Bibsonomy, Slideshare or Videolectures – but also general-purpose social environments such as LinkedIn, where matters related to skills, competence development or training are central concerns of involved stakeholders. These interactions generate a vast amount of informal knowledge resources of varying granularity, as well as indicators for learning and competences, which are currently under-investigated.

On the other hand, the widespread adoption of Linked Data principles [2], as well as the more recent widespread adoption of embedded annotations through schema.org, Microformats and RDFa, has led to the availability of vast amounts of semi-structured data [1], which facilitates interpretation and reuse of Web content and data [4]. This includes schemas and vocabularies directly focused on learning (e.g., LRMI, AAISO, BIBO) and more knowledge-oriented datasets, such as the ones gathered by LinkedEducation.org<sup>1</sup>, LinkedUniversities.org<sup>2</sup> and LinkedUp<sup>3</sup>. These repositories offer data from The Open University (UK), Learning Analytics datasets and resources [3], or the mEducator Linked Educational Resources [5], as well as general purpose knowledge graphs, such as DBpedia, WordNet RDF.

This has led to the creation of an embryonic “Web of Educational Data”, which is largely focused on sharing semi-structured metadata about resources, but which still lacks sufficient recognition of learning-related activities and knowledge resources that are prevalent in less structured and informal online settings. On the other hand, progress in methods and tools for Entity-centric approaches for analysing and understanding the wealth of data on the Web – such as entity extraction, linking and retrieval – have paved the way for the exploration of Web data and knowledge relevant to learning and education. The widespread analysis of both informal and formal learning activities and resources has the potential to fundamentally aid and transform the production, recommendation and consumption of learning services and content. However, widespread take-up of such approaches is still hindered by issues that are both technical as well interdisciplinary.

Building on the success of previous editions (LILE 2011-2015)<sup>4</sup>, LILE2016<sup>5</sup> addresses such challenges by providing a forum for researchers and practitioners who make innovative use of Web Data for educational purposes. After extensive peer review (each submission was reviewed by at least three independent reviewers) we were able to select 7 papers for presentation in the program. The workshop would not have been possible without contributions of many people and institutions. We are very thankful to the organizers of the WWW 2016 conference for providing us with the opportunity to organize the workshop, for their excellent collaboration, and for looking after many important logistic issues. We are also very grateful to the members of the program committee for their commitment in reviewing the papers and assuring the good quality of the workshop program. We also thank all authors and invited speakers for their invaluable contributions to the workshop. Of course, great appreciation goes to our sponsors GNOSS<sup>6</sup>, AFEL and EATEL. We thank all supporters of LILE2016 for making this event possible.



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<sup>1</sup> <http://linkededucation.org>

<sup>2</sup> <http://linkeduniversities.org>

<sup>3</sup> <http://data.linkededucation.org/linkedup/catalog>

<sup>4</sup> <http://lile.linkededucation.org/2016/previous>

<sup>5</sup> <http://lile.linkededucation.org/2016>

<sup>6</sup> <http://gnoss.com/>

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## Linked Learning 2016 Organization

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