

Online Learning and Linked Data - Lessons Learned and Best Practices

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1. SCOPE OF THE TUTORIAL

Linked Data has established itself as the de facto means for the publication of structured data over the Web, enjoying amazing growth in terms of the number of organizations committing to use its core principles for exposing and interlinking Big Data for seamless exchange, integration, and reuse. More and more ICT ventures offer innovative data management services on top of Linked Data, creating a demand for Data Scientists possessing skills and detailed knowledge in this area. Ensuring the availability of such expertise will prove crucial if businesses are to reap the full benefits of these advanced data management technologies, and the know-how accumulated over the past years by researchers, technology enthusiasts and early adopters.

The European project EUCLID (<http://www.euclid-project.eu/>) contributes to this goal by developing a comprehensive educational curriculum, supported by multimodal learning materials and highly visible eLearning distribution channels, tailored to the real needs of data practitioners. The EUCLID curriculum focuses on techniques and software to integrate, query, and visualize Linked Data, as core areas in which practitioners state to require most assistance. A significant part of the learning materials produced in the project consists of examples referring to real-world data sets and application scenarios, code snippets and demos that developers can run on their machines, as well as best practices and how-tos. The EUCLID learning materials are available for free on the project web site, as well as on Apple's iBook Store as an interactive iBook for use on the iPad and MacOS (<http://bit.ly/using-linked-data-effectively>).

While EUCLID takes benefit from new means through which learning can be achieved online to increase the availability of skills in linked data-related practices, the same practices can also contribute to the development of the technologies making open and distance learning feasible. Indeed, the goal is to move from current localised, restricted and locked proprietary content towards the open discovery, use and combination of resources independent from their geographic and institutional origins. Linked Data relies on the simple idea that the mechanisms used nowadays to share and interlink documents on the Web can be

applied to share and interlink data and metadata about these documents, as well as the concepts and entities they relate to. In this tutorial, we will show concretely how the practices of Linked Data considered as a learning challenge as described above can be adopted to improve the learning experience of online students. This will be based on the concrete experience of deploying a Linked Data platform at the Open University (<http://data.open.ac.uk>) and on the environment and experience deployed by the LinkedUp project (<http://linkedup-project.eu>), which main objective is to push forward the technologies and uses of a Web of Educational Data. In particular, we will introduce challenges and opportunities of linked data technologies and principles to create novel, personalised and data-intensive educational services and show positive examples with respect to data, for instance, from the Linked Education Catalog (<http://data.linkededucation.org>), and applications, such as the successful submissions of the LinkedUp Challenge (<http://linkedup-challenge.org>).

Following the latest developments in online learning and Linked Data, the scope of this tutorial will be two-fold:

1. New online learning methods will be taught for supporting the teaching of Linked Data. Additionally, the lessons learned and the best practices derived from designing and delivering a Linked Data curriculum by the EUCLID project will be discussed.
2. Ways in which Linked Data principles and technologies can be used to support online learning and create innovative educational services will be explained, based on the experience developed in the development of existing Linked Data applications for online learning. We will in particular rely on the data catalogue, use cases and applications considered by the LinkedUp project.

The resources used in this tutorial, i.e. presentations, learning materials, etc., will be made available at the tutorial's web page: <http://www.euclid-project.eu/events/online-learning-and-linked-data-www2014>.

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