

**This document is published in:
Pijeira Díaz HJ, Santofimia Ruiz J, Ruipérez-Valiente JA, Muñoz-Merino PJ, Delgado Kloos C.
A Demonstration of ANALYSE: A Learning Analytics Tool for Open edX. In: Proceedings of the Third (2016) ACM Conference on Learning @ Scale - L@S '16. New York, New York, USA: ACM Press; 2016. p. 329–30.**

<http://dl.acm.org/citation.cfm?id=2893402>

DOI: 10.1145/2876034.2893402

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A Demonstration of ANALYSE: A Learning Analytics Tool for Open edX

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Abstract

Education is being powered by technology in many ways. One of the main advantages is making use of data to improve the learning process. The massive open online course (MOOC) phenomenon became viral some years ago, and with it many different platforms emerged. However most of them are proprietary solutions (i.e. Coursera, Udacity) and cannot be used by interested stakeholders. At the moment Open edX is placed as the primary open source application to support MOOCs. The community using Open edX is growing at a fast pace with many interested institutions. Nevertheless, the learning analytics support of Open edX is still in its first steps. In this paper we present an overview and demonstration of ANALYSE, an open source learning analytics tool for Open edX. ANALYSE includes currently 12 new visualizations that can be used by both instructors and students.

Author Keywords

Learning Analytics, Open edX, Visualizations, MOOCs

Introduction

Open edX is currently one of the main possibilities to use as an open source platform to deliver MOOCs or other online courses. Recent reports [2] indicated that at the moment there are more than 150 sites running Open edX

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L@S 2016, April 25-26, 2016, Edinburgh, Scotland Uk.
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<http://dx.doi.org/10.1145/2876034.2893402>

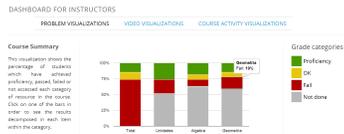


Figure 1: Dashboard for instructors with *Course Summary* visualization for the entire class, where the instructor can find the results for each section and problem of the course.



Figure 2: Example of *Video Time Distribution* visualization which shows the amount of time invested in each video for the selected student.

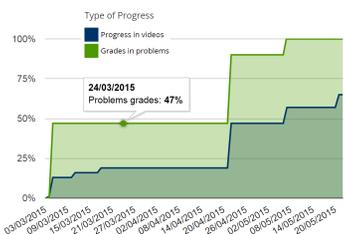


Figure 3: *Problem and Video Progression* visualization for a specific student, where he/she can learn about his/her progress in the course day by day.

with more than 1500 courses. However, the learning analytics support is still very scarce for a platform that is having such a high impact. One of the initiatives from edX in this direction is Insights, but at the moment it might not fulfil all the requisites for instructors, and is not available for students self-awareness. At Universidad Carlos III of Madrid, we have developed our own learning analytics platform for Open edX, which is called ANALYSE¹ and is open source². For the aforementioned reasons, we believe that many institutions and researchers can be interested in ANALYSE.

Overview of ANALYSE

Technologies and Architecture

ANALYSE has been designed to be a Django app within the learning management system of Open edX. We have used mainly the same technologies as Open edX, such as Django, Python, Celery for scheduling jobs and we use Google Charts for the visualizations.

Metrics about the Learning Process

Currently ANALYSE contains 12 new metrics that were not present by default in Open edX. All these metrics are calculated for each student in a course but we also provide aggregates of the entire class. We have grouped these metrics in three sections. Related to the interaction of students with exercises, with videos, and more generally related to course activity. We can see some examples of these metrics in Figures 1, 2, 3.

Visualization Dashboard

We have implemented a visualization dashboard to display all the metrics. This dashboard is accessible by both students and instructors, however, while instructors are

able to watch information about all students and course aggregates, students can access only their own data. We believe that ANALYSE visualization dashboard can be used for several purposes, for example to monitor students individually, to detect problems in resources, or for self-awareness. Another specific example is the use of ANALYSE to detect problems in videos [1], i.e. to see which parts of the videos are reviewed more often.

Demonstration Outline

The attendants to the conference will be able to interact with ANALYSE within an Open edX instance with data from real students. They can explore the different visualizations and case studies proposed by the authors of the work.

Acknowledgements

This work has been supported by the "eMadrid" project (Regional Government of Madrid) under grant S2013/ICE-2715 and "RESET" project under grant RESET TIN2014-53199-C3-1-R

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¹<http://www.it.uc3m.es/pedmume/ANALYSE/>

²<https://github.com/jruiperezv/ANALYSE>