Learning dashboard for supporting students:
from first-year engineering to MOOC students

Tinne De Laet
Head Tutorial Services Engineering Science
Leuven Engineering and Science Education Center (LESEC), KU Leuven
Leuven, Belgium
tinne.delaet@kuleuven.be

Tom Broos
PhD student
Leuven Engineering and Science Education Center (LESEC), KU Leuven
Leuven, Belgium
tom.broos@kuleuven.be

J.P. van Staalduinen
Project Manager Research & Online Labs
TU Delft Online Learning
Delft, Netherlands
J.P.vanStaalduinen@tudelft.nl

M. Ebner
Head of Lehr und Lerntechnologien
Technische Universität Graz Graz, Austria
martin.ebner@tugraz.at

Conference Key Areas: Retention of students, Engineering Skills, Recruitment

Keywords: learning analytics, learning dashboards, student success, retention, machine learning, first-year experience

INTRODUCTION

The economic and financial crisis is having an important socio-economic effect in Europe and is threatening Europe's economic growth model. To counter the crisis, Europe should further evolve to a knowledge-driven and technology-based economy. This evolution however causes a rise in the demand for personnel with post-secondary education diploma [1]. In the transition from secondary to higher education a lot of high-potential students drop out [2]. Furthermore, MOOCs experience extremely high non-completion rates [3].

By applying **learning analytics** on indicators that are predictive for a successful transition and online course completion, students can be provided with feedback on in

order to improve their self-regulation, hereby providing support during the first-year and in online courses.

MOTIVATION

Within the Erasmus+ project STELA “Succesful Transition from secondary to higher Education using Learning Analytics”, three European engineering bachelor programs have been exploring the use of learning analytics and learning dashboards to support both first-year and MOOC students. The focus of the project has been on actionable feedback using a scalable approach that allows for institution-wide deployments.

Thanks to deployments of five student-facing dashboards more than 5.000 first-year students and 3.000 MOOC students were reached.

RATIONALE OF THE SESSION

The goal of the workshop is fourfold:

1. Familiarize the attendants with the learning dashboards developed in the project;
2. Share the project results, and especially the measured impact;
3. Challenge the scalability of the dashboards; and
4. Obtain feedback on the 11 main project recommendations.

PARTICIPANT ENGAGEMENT

We will use around 15 minutes of the workshop for plenary presentation. The remainder is dedicated to group work. Here we detail the activities according to the four workshop goals:

1. Within a group, each attendee explores one of the developed dashboards using an on-line live demo dashboard, and the obtained results (made available in a presentation format). Next, each group member presents the dashboard to the other group members and summarizes the results. Each group discusses the obtained results and selects one that is most striking to them.
2. The different groups present their “most striking” result to each other. Next, a small plenary discussion is done.
3. Regarding the transferability, each attendee reflects about one opportunity and one challenge for transferring the dashboards to their institute. The opportunities and challenges are shared in a “live” wordcloud that is subject of plenary discussion.
4. The project findings are provided to the different groups. Groups discuss the usability, clarity, and quality of these recommendations. Feedback is written down on a shared document. As a closure, the groups share one point of feedback with all attendees.

If participants bring their own device, they can get a live experience of the dashboards.

WORKSHOP OUTCOMES

For the attendees the outcomes are the following:

1. access to the demo learning dashboards of the projects;

2. results of the project's learning dashboards;
3. list of opportunities and challenges for transfer of learning dashboards to other institutes;
4. project recommendations.

For the project the outcomes are the following:

1. Opportunities and challenges for transferability will be processed and shared on the project webpage.
2. Feedback on the project recommendations are processed in the final project months, and will contribute to the project quality.

ACKNOWLEDGMENT

We gratefully acknowledge the support of the Erasmus+ program; STELA Project with number 562167-EPP-1-2015-1-BE-EPPKA3-PI-FORWARD.

REFERENCES

[1] A. P. Carnevale and D. M. Desrochers, "Work Smarts, Life Smarts: How Education's Societal Mission and Business' Human Resource Needs Are Converging," *J. New Engl. Board High. Educ.*, vol. 17, no. 4, pp. 16–18, 2003.

[2] M. Bangser, "Preparing high school students for successful transitions to postsecondary education and employment," *Natl. High Sch. Cent.*, pp. 1–24, 2008.

[3] H. Khalil and M. Ebner, "MOOCs Completion Rates and Possible Methods to Improve Retention - A Literature Review," *EdMedia World Conf. Educ. Media Technol.*, vol. 2014, no. 1, pp. 1305–1313, 2014.