

## **Successful transition from secondary to higher education using learning analytics**

Tinne De Laet, Tom Broos, Jan-Paul van Staalduinen, Philipp Leitner, Martin Ebner

### **CONTEXT**

The economic and financial crisis is having an important socio-economic effect in Europe and is threatening Europe's economic growth model and employment and the sustainability of Europe's welfare 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, since many jobs in such a knowledge en technology-drive economy require at least a postsecondary education (Carnevale & Desrochers 2003). However, during the transition from secondary to higher education a lot of high-potential students drop out (Banger 2008).

The transition to higher education is challenging both from the academic and social perspective (Tinto 1993). Firstly, students have to adjust to the life at the higher education institute, which is often totally different from living at home and going to secondary education. Secondly, the academic expectations of higher education are different than the ones from secondary education. Students have to evolve to independent learners that take their own responsibility for coping with the high study workload. This requires that first-year students in higher education have to go through a transition from learning dependence to learning autonomy.

A successful transition from secondary to higher education can be characterized by different features:

1. Academic achievement (e.g. credits obtained, GPA, timely graduation)
2. Realistic academic self-concept and expectations (e.g. correct positioning with respect to peers)
3. Well-being, good perceived-fit, good quality of motivation, and
4. In-time re-orientation of field of study in case of wrong study choice

### **SUPPORTING LITERATURE**

The study of Briggs et al. (2012) indicates the importance of encouragement and individual support during the transition and targeted activities that enable learning about higher education. The transition period from learning dependence to learning autonomy also provides the opportunity for students to reflect on their conceptions of learning and assessment, and how the first-year experience may allow individuals to prepare for university study and develop key skills for their future careers (Hodgson et al. 2010). Therefore instead of perceiving assessment during the transition as hoops to jump through, it can also be seen as the basis of a critical environment in which students can develop confidence and become more sophisticated learners (Hodgson et al. 2010). This however requires that each student receives immediate and continuous feedback throughout the entire transition and learning process. The focus of this feedback is not summative (i.e. connected to exams within the study program) but rather comparative (i.e. positioning with respect to the peers) and formative (i.e. feedback based on monitoring the student learning in order to improve their learning process). Moreover, the quality of this feedback should be high. Therefore, the feedback should not be merely automatic (e.g. based on learning analytics) but supplemented with personalized feedback from student counsellors. Students with disadvantaged background can especially profit from this feedback (For a detailed explanation see next section). Foster & Lefever (2011) found that male students reported that they were less engaged with their studies and had weaker relationships with students and

particularly academic staff. Male students were more likely to withdraw than their female peers. This appeared to be partly because they were less aware that there might be a problem and less aware of the support mechanisms available such as study counselling.

## **METHODOLOGY**

By applying learning analytics on indicators that are predictive for a successful transition, the generated individual learner profile will allow students to adapt their learning activities and improve their self-regulation. For student counsellors, access to real-time learner profiles will allow an earlier detection of at risk students and optimized coaching of particular learner profiles. Therefore, the application of learning analytics to the transition of secondary to higher education has a high potential of raising the quality of the support given to students during this transition. For example, Arnold (2010) found that a learning analytics traffic light system on the university VLE led to changes in student behavior. Once students became aware that they were exhibiting behaviors that were not conducive to academic success, they started to increase their overall engagement and became more likely to seek out help.

## **WORKSHOP**

The workshop will present the first results of the STELA (Successful Transition from Secondary to Higher Education through Learning Analytics) Erasmus+ project with partners KU Leuven, TU Delft, TU Graz, Nottingham Trent University, and SEFI. The goal of the project is to develop, test, and assess a learning analytics approach for the specific challenging field of transition from secondary to higher education. By applying the developed approach to diverse educational contexts (different countries, different admission policies, different faculties), the approach will have a clear potential for mainstreaming and for extension to other fields than the transition. Moreover, the project will provide an in-depth review of the effective use of learning analytics during this transition, which can be translated to policy recommendations concerning the use of learning analytics to raise the quality in education.

The first project results include a literature survey of the use of learning analytics for supporting the transition from secondary to higher education, and the first results of setting up a learning analytics approach at the main project partner and Nottingham Trent University, who is already running a learning analytics dashboard for two years. Moreover, the workshop will engage the participants in sharing their thoughts on opportunities, challenges, strengths and difficulties of the use of learning analytics with the particular audience of first year engineering students into mind. Additionally, possible routes for evaluating learning analytics approaches will be presented and discussed upon. Finally, the focus will be on institutional challenges (with a special focus to privacy and ethics) and policy recommendations.

## **CONCLUSIONS AND FUTURE WORK**

The workshop will present the first project results of the Erasmus+ project and already show the discovered challenges and opportunities for using learning analytics to support first year engineering students. In the future the project will further focus on developing and implementing a learning analytics approach that will be applied to three European engineering bachelor programs, but will be transferable to other universities too.

## **ACKNOWLEDGMENT**

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

## **REFERENCES**

[Arnold, 2010] *Signals: Applying Academic Analytics [Homepage of EDUCAUSE Review]*, [Online]. Available: <http://www.educause.edu/ero/article/signals-applying-academic>

analytics#TB\_inline?height=500&width=630&inlineId=sidebar2&modal=false [February/13, 2015].

[Banger 2008] *Preparing High School Students for Successful Transitions to Postsecondary Education and Employment*  
[http://betterhighschools.org/docs/PreparingHSStudentsforTransition\\_073108.pdf](http://betterhighschools.org/docs/PreparingHSStudentsforTransition_073108.pdf)

[Briggs et al. 2012] A.R.J. Briggs, J. Clark & I. Hall (2012): *Building bridges: understanding student transition to university, Quality in Higher Education*, DOI:10.1080/13538322.2011.614468

[Carenevale & Desrochers 2003] *Standards for what? The economic roots of K–16 reform*. Princeton, NJ: Education Testing Service. Retrieved January 8, 2008, from [http://www.transitionmathproject.org/assets/docs/resources/standards\\_for\\_what.pdf](http://www.transitionmathproject.org/assets/docs/resources/standards_for_what.pdf)

[Foster & Lefever 2011] *Barriers and strategies for retaining male students*. In: L. THOMAS and J. BERRY, eds, *Male access & success in Higher Education: a discussion paper*. York: Higher Education Academy, pp. 20-25.

[Hodgson et al 2010] Hodgson P, Lam P, Chow C. (2010) *Assessment experience of first-year university students: dealing with the unfamiliar*  
<http://www.cetl.hku.hk/conference2010/pdf/Hodgson.pdf>

[Tinto 1993] *Leaving College: Rethinking the Causes and Cures of Student Attrition*. Chicago: University of Chicago Press.