About STELA

The STELA research project

- Goal: to enhance a successful transition from secondary to higher education by means of learning analytics.
- Holistic focus: across individual courses and heterogeneous learning activities to support the entire FY learning phase.
- Multidisciplinary team: learning analytics researchers, educational technology experts, experts in the transition from secondary to higher education and practitioners.
- Planning: from research to experiment to larger scale implementation in partners institutions within 3 years. Started in November 2015.

What we expect to deliver

- Individual guidance <u>for the student</u> (but also teacher and counsellor) based on the vast amount of data that is available within the institution.
- An interaction model to inform the student on a regular base and to get response from the student to improve this information continuously.
- Example elements: data visualization, dashboard, mini-surveys, ...

Inspiration: Quantified Self





Inspiration: Recommendations



Inspiration: Micro-interactions



Assignment A



Think of your ideal student dashboard and make a sketch of what you would like to show students.

Assume that any reasonable observable data is available without further restrictions.

Next, think about how the dashboard suits the cases of Anna, Ben and Chris.

Discuss:

- Would you end up with the same type of dashboard for each student, a somewhat similar dashboard or a completely personalized version?
- Is the dashboard helpful for every type of student? Or does it focus on students at risk, the best performing students,...?
- ...

Student dashboard



Student profile

Anna is a first year student in International Business. She was eager to move away from home after her exams. She was happy to be accepted in the university of her choice, although her prior education and grades were not a perfect fit with the requirements of the programme.

Anna quickly became good friends with some of the girls in her dorm and they like to go out every weekend. Anna attends most of her classes, because she enjoys listening to the lecturers, but she has trouble to open her books when she is at home. When she does, she feels like she already knows most of it and is distracted quickly.

Last week she found out that she failed most of her midterm exams. She is slightly worried, but her friends tell her that people often fail the midterms and make up for it at the end of the term by cramming in the library just before the exams. Anna is wondering if there is reason for concern or that maybe her friends may be right.



Student profile

Ben is a first year student of 19 years old and enrolled in a course on pharmacology. He is born and raised in the city where he studies. He had good grades in secondary school, which is considered a good school in town. Ben needed put in time and effort, but he was motivated to achieve. He had a few friends with whom he liked to play computer games and he was part of the chess club.

His friends decided to study in a different town and Ben finds he has some trouble making new friends among his fellow students. He finds that studying pharmacology in university is very different from studying at school: there are long hours in the lab and the lectures are condensed.

He feels insecure about his progress and he would like to know how he is doing and if maybe he should go see a counselor to discuss his situation.



Student profile

Chris is a first year student who is studying Sociology. He enjoys university, and has made good friends on the course. However, on reaching the end of the second term, Chris has realized that he is not doing as well as his peers and would like to do better.

Chris's grades are mediocre, so they have not been picked up by a tutor alert. He attends some of his lectures, and has been into the library but doesn't know how to access online books and journals. He doesn't want to ask how to do this for fear of appearing stupid. He sometimes accesses online resources provided by his lecturers, but doesn't do this regularly.

Chris would like to know what he can do to improve his grades.



Available data: Institutional data



Available data: Positioning test

Engineering Positioning Test

Non-mandatory and non-binding test before the start of the academic year. Focusses on math (abstract mathematical bachelor programs and best predictor for later study success).

Tries to inform student on their position with respect to other participants and with respect to expected mathematical skills for engineering science bachelor.







Available data: Summative assessment

Official grades

Depending on the academic term, summative assessment takes place at the end of quarter, semester, trimester, ... Most FY programmes in Belgium have two exam periods (Januari and June) and a second chance in September.

Feedback based on summative assessment is very valuable, but is only possible late in the process and after the facts. Feedback to students may also be based on results form previous years (e.g. success rate) and results of peers (positioning).



Students Bachelor Ir KU Leuven - generation students 2009-2010

Available data: VLE activity

Activity in the Virtual Learning Environment.

From the event logs of VLEs such as Blackboard, Moodle, Sakai, ... it is possible to record or reconstruct the activity of students within these platforms.

Modern MOOC/SPOC solutions for online or blended learning, like edX, are enabling even more fine grained data collection about course-related student activity.





Available data: Other

Self reporting

Traditional self reporting takes place once or twice a year. By interweaving mini surveys in the format of micro interactions with the VLE and/or student dashboard, it could become possible to collect data points throughout the entire learning process.





Library access

Physical access to the library, for its books, as a study environment or for group work, is relatively easy to record byproduct of access restriction.

Assignment B







Now limit the information on the dashboard to what can be derived from the available data.

You may either choose to create a completely different view for each of the three students, or repeat the same dashboard structure with data adapted to the individual case.

Discuss:

- How can this dashboard support Anna, Ben and Chris?
- Did you have to give up important information because of the data availability restriction? What would you really like to add?
- ...

Anna



Ben



Chris



NOT available



Assignment C



Some information is difficult or inappropriate to capture. But learning activities are seldom limited to online behaviour. Class attendance, desk study and discussing the course with peers are important parts of a successful learning strategy. And even online, learners are likely to find their own ways to deal with the course material and preparation for assignments. Most of the information on popular social networks is not easily accessible for learning analytics.

One option is not to try to capture everything, but to complement the available data by asking the students themselves.

What would you ask the student? And when?

Consider the microinteraction concept. Is it helpful?





