Connecting Data with Student Support Actions in a Course

Learning Analytics and Knowledge
Vancouver, 14 March 2017

Abelardo Pardo, Roberto Martínez-Maldonado, Simon Buckingham-Shum, Jürgen Schulte, Simon McIntyre, Dragan Gašević, Jing Gao, George Siemens
<table>
<thead>
<tr>
<th>TYPE OF ANALYTICS</th>
<th>LEVEL OR OBJECT OF ANALYSIS</th>
<th>WHO BENEFITS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Learning Analytics</td>
<td>Course-level: social networks, conceptual development, discourse analysis, “intelligent curriculum”</td>
<td>Learners, faculty</td>
</tr>
<tr>
<td></td>
<td>Departmental: predictive modeling, patterns of success/failure</td>
<td>Learners, faculty</td>
</tr>
<tr>
<td>Academic Analytics</td>
<td>Institutional: learner profiles, performance of academics, knowledge flow</td>
<td>Administrators, funders, marketing</td>
</tr>
<tr>
<td></td>
<td>Regional (state/provincial): comparisons between systems</td>
<td>Funders, administrators</td>
</tr>
<tr>
<td></td>
<td>National and International</td>
<td>National governments, education authorities</td>
</tr>
</tbody>
</table>
Connecting Data with Student Support Actions in a Course

Learning Analytics Model

Tools: Excel, Ontask
Scenario

1. 500 students
2. 6 weeks into course
3. Using Video + MCQ
4. Midterm exam with 10 questions in Week 6
Design data-driven personalized interventions in a real learning experience

1. Situate the scenario and explore dataset
2. Provide personalised feedback midterm results
3. Feedback based on discussion forum data
4. OnTask to design personalised actions
5. Your thoughts…

Coffee break
2.1. Explore the results of the midterm exam

2.1.1. Objectives
- Manipulate the data file containing the answers to a multiple-choice question exam.
- Create some data visualisations.

2.1.2. Resources
- The file `midterm_results.csv` that is part of the zip file with the data set. The file contains the following columns:
  - SID
    - Student identifier (a number with 9 digits)
  - Last Name, First Name
    - Student last and first name respectively.
  - Q01 to Q10
    - The result for each of the ten questions in the exam (1 is correct, 0 is incorrect)
  - Total
    - Accumulated score (number of correct answers) over 100.

2.1.3. Workplan
1. Open the file `midterm_results.csv` with Excel. Repeat the procedure from the activity Download and inspect the data and create a table in the spreadsheet. The table should appear as shown in
1. Situate the Tutorial and Inspect Dataset

1.1. Situate the Tutorial

1.2. Download and inspect the data

2. Scenario A: Feedback about Midterm Exam

2.1. Explore the results of the midterm exam

2.2. Write rules and text to respond to the midterm
Principles to provide good feedback

1. Helps to clarify what is a good performance.
2. Promotes self-assessment (or self-reflection)
3. Includes high quality information
4. Prompts a dialogue with instructors about learning
5. It has a positive tone promoting self-esteem.
6. Suggests actions to adjust the learning strategy

Your rule?

Condition:

Text:
3. Scenario B: Discussion Forum and Linear Model

3.1. Explore the data from the discussion forum

3.2. A Linear Model

Connecting Data with Student Support Actions in a Course

Pardo et. al.

Learning Analytics Model

midterm score = 18.2804 + (2.1859 * Days Online) + (1.3429 * Contributions)
3. Scenario B: Discussion Forum and Linear Model

3.1. Explore the data from the discussion forum

3.2. A Linear Model

Your rule?

Condition:

Text:
5. Tell us what you think

Before you go, we would like to know your opinion about the use of the tool to support the process you experienced during the workshop. The objective is to know your perception of how useful is this process and how intuitive is to be deployed with the help of a tool like OnTask in a real scenario.

You can read about the details of the study in the Participant Information Statement and, following the procedure described in the document, we need your written consent in a form that will be given to you during the session.

The activity for the study consists in a discussion about the following questions:

1. How feasible do you see the use of OnTask in higher education institutions. Outline the potential benefits and barriers.
2. What type of users do you envision using the tool and in which scenarios.
3. What type of institutional support is required for a tool like OnTask to have widespread adoption.
4. How would you rate the overall user experience with OnTask
5. Is there a feature that you would consider essential for the tool?
Connecting Data with Student Support Actions in a Course

ontasklearning.org

Institutional Data Sources

LMS
Lecture Capture
SIS
Lab Note
Attendance
Observation
Demographics

Data In
Data Out
Analyze
Plug-ins

API
Instructor
Web Interface
Rule
If This Then That
IF: A and (not B)
Hi {name}.
Here are some tips
- Tip 1
- Tip 3
- Tip 6

VLE

Students

@ontasklearning
Interested on further training?

Workshop to

• Expose instructors and educational designers to data sets
• Frame the deployment of personalised support
• Explore immediate vs long-term actions
• Identify institutional needs
• Jumpstart the conversation

Check ontasklearning.org
Connecting Data with Student Support Actions in a Course

Learning Analytics and Knowledge
Vancouver, 14 March 2017

Abelardo Pardo, Roberto Martínez-Maldonado, Simon Buckingham-Shum, Jürgen Schulte, Simon McIntyre, Dragan Gašević, Jing Gao, George Siemens