NFC LearnTracker: Seamless support for learning with mobile and sensor technology

Bernardo Tabuenca
4th Immersive Education Summit
Vienna (Austria)
2014 November 24th-26th 2014
Agenda

My research:
• Background & Previous work
• Ongoing work
  NFC LearnTracker
  Self-regulation with learning analytics
• Future work
  Ambient Learning Displays
  Internal Feedback
Objectives
1. Support meta-cognitive skills for lifelong learning
2. Bind daily life activities with learning
Ubiquitous support for lifelong learning

“Lifelong learning is like a never ending personal revolution.” via @BryantMcGill, Voice of Reason

“We have developed and shaped technology, but now, technology is shaping us.”

Latour et al. (Actor Network Theory)
Fostering reflective practice with mobile notifications: time location and channels

Bind learning with daily life activities

Ongoing work
Measure learning time

Tabuenca, B., Kalz, M., Specht, M. (2014), Seamless support for lifelong learners with mobile and sensor technology, In Journal of Immersive Education (Accepted) November 2014
NFC LearnTracker

Goal definition

Aaquí tienes que introducir a Candy y a hattie y las movidas teóricas...
NFC LearnTracker

Goal definition

Tabuenca, B., Kalz, M., Specht, M. (2014b)
NFC LearnTracker

Perform Learning Activity

A. Write two paragraphs for a journal article taking the first coffee
B. Reading scientific literature during waiting times
C. Listening English podcasts commuting to work, college, gym...
D. Watch top presenters' videos during commercial breaks

Tabuenca, B., Kalz, M., Specht, M. (2014b)
Learning Analytics via Visualizations
Studyload

Teacher’s perspective

1. Having an account on how much time...
   • is invested by students on learning
   • fluctuates the time invested on different learning tasks
2. Identify tasks that require more / less time than scheduled.
3. Identify potential dropout
   • Students
   • Moments/Assignments
Studyload

Ongoing experiment

3 Groups. University Students
• Psychology. Klinische I
• Geographical Information Systems
  • Open Universiteit
  • Radboud University

Potential groups. Invitation
# Studyload

**Yardstick: Geographical Information Systems**

<table>
<thead>
<tr>
<th>Course name</th>
<th>Geographical Information Systems</th>
</tr>
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<tbody>
<tr>
<td>Course ID</td>
<td>N35231</td>
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<table>
<thead>
<tr>
<th>Block / Task / Module</th>
<th>Date start</th>
<th>Duration (hours)</th>
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<tbody>
<tr>
<td>1.1 Knowing GIS</td>
<td>Monday, 17 November 2014</td>
<td>5</td>
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<tr>
<td>2.1 Abstraction and perception</td>
<td>Thursday, 20 November 2014</td>
<td>3</td>
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<tr>
<td>2.2 Geometry</td>
<td>Saturday, 22 November 2014</td>
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<tr>
<td>2.3 Getting to know ArcGIS / Georeferencing</td>
<td>Monday, 24 November 2014</td>
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<tr>
<td>2.4 Representation and implementation</td>
<td>Thursday, 27 November 2014</td>
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<td>2.5 Examples of GIS implementations</td>
<td>Monday, 01 December 2014</td>
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<tr>
<td>3.1 Data input and editing</td>
<td>Wednesday, 03 December 2014</td>
<td>2</td>
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<td>3.2 Remote sensing</td>
<td>Friday, 05 December 2014</td>
<td>2</td>
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<td>3.3 Digital image classification</td>
<td>Saturday, 06 December 2014</td>
<td>2</td>
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<td>3.4 Data errors</td>
<td>Sunday, 07 December 2014</td>
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<td>3.5 Manual digitalizing</td>
<td>Monday, 08 December 2014</td>
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<tr>
<td>3.6 Working with digital sensor images</td>
<td>Thursday, 11 December 2014</td>
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<tr>
<td>3.7 Clearinghouses and metadata</td>
<td>Monday, 15 December 2014</td>
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<td>4.1 Data querying</td>
<td>Thursday, 18 December 2014</td>
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<tr>
<td>4.2 Data transformation and reclassification</td>
<td>Saturday, 20 December 2014</td>
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<td>4.3 Processing by attributes</td>
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<td>4.4 Processing by neighbourhood</td>
<td>Thursday, 01 January 2015</td>
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<td>4.5 Spatial interpolation</td>
<td>Saturday, 03 January 2015</td>
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<td>4.6 Processing by overlay</td>
<td>Thursday, 08 January 2015</td>
<td>6</td>
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<td>4.7 DEM analysis</td>
<td>Saturday, 10 January 2015</td>
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<td>4.8 Data action modelling</td>
<td>Monday, 12 January 2015</td>
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<td>5.1 Data output</td>
<td>Thursday, 15 January 2015</td>
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<td>Exam</td>
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<td>Final assignment</td>
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**OVERALL**

**Load per week**

10
Studielast

Record time: Geographical Information Systems
Learning Analytics: via visualizations

Control group
Record Time

Treatment 1
OUNL Scheduled Time VS My Time

Treatment 2
Colleagues AVG Time VS My Time
Studielast

Learning Analytics: via SMS Notifications

"Hfdst 2" is the chapter in which you and your colleagues reported to invest less time so far. Please record your learning time via http://bit.ly/1uB3ZSc

Mondays & Wednesdays are the preferred days to learn Klinische. 9am and 1pm are the preferred times of the day. Please record your learning time via http://bit.ly/1uB3ZSc

Hi Bernardo, [Tip1: Plan Ahead. Schedule it and it will happen!]. Determine how long your tasks will take]. Record your learning time using the LearnTracker APP http://bit.ly/LearnTracker

Hi Bernardo, [Tip4: Practice not answering e-mails just because they show up. Disconnect instant messaging while studying]. Please record your learning time via http://bit.ly/1uB3ZSc
Future work
Ambient learning displays

Feedback Cube

Feedback via ambient learning displays

Next learning task
Questions?

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References