Data Analytics on VLE Access Data
How much can we mine from a mouseclick?

John Brennan
Owen Corrigan
Aly Egan
Mark Glynn
Alan F. Smeaton
Sinéad Smyth

@glynnmark
Outline

• Motivation and goals
• Selecting the modules
• Study by numbers
• The interventions
  - What the student sees
  - What the Lecturer sees
• What the students said
• The results
Motivation
Total Moodle Activity – notice the periodicity
One example module – ideal!
Study by numbers

• 17 Modules across the University (first year, high failure rate, use Loop, periodicity, stability of content, Lecturer on-board)
• Offered to students who opt-in or opt-out, over 18s only
• 76% of students opted-in, 377 opted-out, no difference among cohorts
• 10,245 emails sent to 1,184 students who opted-in over 13 weekly email alerts
No significant difference in the entry profiles of participants vs. non-participants overall.
Modules which work well …

- Have periodicity (repeatability) in Moodle access
- Confidence of predictor increases over time
- Don't have high pass rates (< 0.95)
- Have large number of students, early-stage
LG116: Introduction to Politics

Students / year = ~110
Pass rate = 0.78
LG116 – Predictor confidence (ROC AUC)
Dear [Name],

This week our records show that your level of Moodle engagement is nearly at the target. If you try a little harder this week you will easily succeed.

Please use this information to help you to increase your engagement with Moodle. We will continue monitoring your Moodle activity for the module XX and will let you know how well you are doing again next week.

Kind Regards,
The Research Team

If you feel affected by this and would like to speak to someone, please contact student support services [studentsupport@dcu.ie](mailto:studentsupport@dcu.ie)

If you would like more information on this project please contact one of the research team members:

Alan Smeaton: alan.smeaton@dcu.ie
Sinead Smyth: sinead.smyth@dcu.ie
The Interventions – Lecturers’ Experience
Student Experience of PredictED

Students who took part were asked to complete a short survey at the start of Semester 2 - N=133 (11% response rate)

<table>
<thead>
<tr>
<th>Question</th>
<th>Group 1 (more detailed email)</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>% of respondents who <strong>opted out</strong> of PredictED during the course of the semester</td>
<td>4.5%</td>
<td>4.5%</td>
</tr>
<tr>
<td>% who <strong>changed their Loop usage</strong> as a result of the weekly emails</td>
<td>43.3%</td>
<td>28.9%</td>
</tr>
<tr>
<td>% who would take part again/are offered and are taking part again</td>
<td>72.2% (45.6%/ 26.6%)</td>
<td>76.6% (46% /30.6%   )</td>
</tr>
</tbody>
</table>
33% said they changed how they used Loop. We asked them how?

- Studied more
  - “More study”
  - “Read some other articles online”
  - “Wrote more notes”
  - “I tried to apply myself much more, however yielded no results”
  - “It proved useful for getting tutorial work done”

- Used Loop more
  - “I tried harder to engage with my modules on loop”
  - “I think as it is recorded I did not hesitate to go on loop. And loop as become my first support of study.”
  - “I logged on more”
  - “I read most of the extra files under each topic, I usually would just look at the lecture notes.”
  - “I looked at more of the links on the course nes pages, which helped me to further my understanding of the topics”
  - “I learnt how often I need to log on to stay caught up.”
Did you change Loop usage for other modules?

• Most who commented used Loop more often for other modules
  – “More often”
  – “More efficient”
  – “Used loop more for other modules when i was logging onto loop for the module linked to PredictED”
  – “Felt more motivated to increase my Loop usage in general for all subjects”

One realised that Lecturers could see their Loop activity
  “I realised that since teachers knew how much i was using loop, i had to try to mantain pages long on so it looked as if i used it a lot”
## Module Average Performance
### Participants vs. Non-Participants

Average scores for participants are higher in 8 of the 10 modules analysed, significantly higher in BE101, and CA103.

<table>
<thead>
<tr>
<th>Subject</th>
<th>Description</th>
<th>Non-Participant</th>
<th>Participant</th>
</tr>
</thead>
<tbody>
<tr>
<td>BE101</td>
<td>Introduction to Cell Biology and Biochemistry</td>
<td>58.89</td>
<td>62.05</td>
</tr>
<tr>
<td>CA103</td>
<td>Computer Systems</td>
<td>70.28</td>
<td>71.34</td>
</tr>
<tr>
<td>CA168</td>
<td>Digital World</td>
<td>63.81</td>
<td>65.26</td>
</tr>
<tr>
<td>ES125</td>
<td>Social &amp; Personal Dev with Communication Skills</td>
<td>67.00</td>
<td>66.46</td>
</tr>
<tr>
<td>HR101</td>
<td>Psychology in Organisations</td>
<td>59.43</td>
<td>63.32</td>
</tr>
<tr>
<td>LG101</td>
<td>Introduction to Law</td>
<td>53.33</td>
<td>54.85</td>
</tr>
<tr>
<td>LG116</td>
<td>Introduction to Politics</td>
<td>45.68</td>
<td>44.85</td>
</tr>
<tr>
<td>LG127</td>
<td>Business Law</td>
<td>60.57</td>
<td>61.82</td>
</tr>
<tr>
<td>MS136</td>
<td>Mathematics for Economics and Business</td>
<td>60.78</td>
<td>69.35</td>
</tr>
<tr>
<td>SS103</td>
<td>Physiology for Health Sciences</td>
<td>55.27</td>
<td>57.03</td>
</tr>
<tr>
<td>Overall Dff in all modules</td>
<td></td>
<td>58.36</td>
<td>61.22</td>
</tr>
</tbody>
</table>
Questions and discussion...
Contact details

• mark.glynn@dcu.ie
• glynnmark
• http://enhancingteaching.com