

#### A case study in the challenges of using temporal analysis at an Australian university

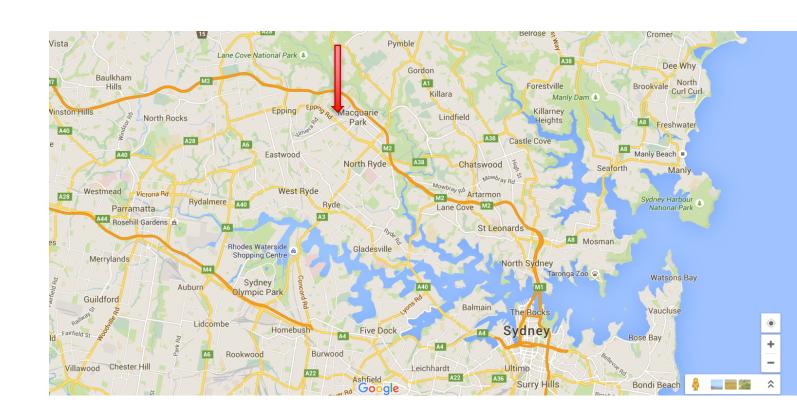
LAK2016
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Monday 25 April 2016



INSTITUTION





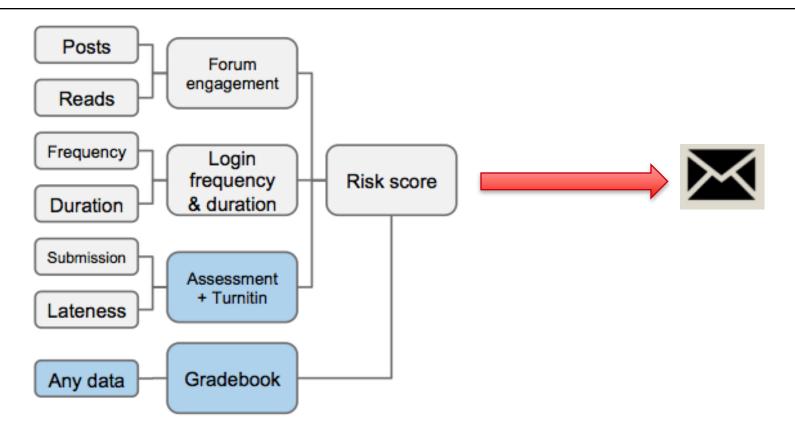
#### LMS





#### TOOL

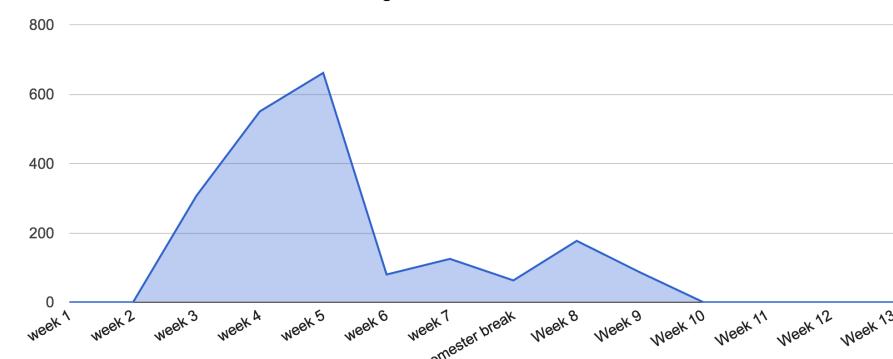




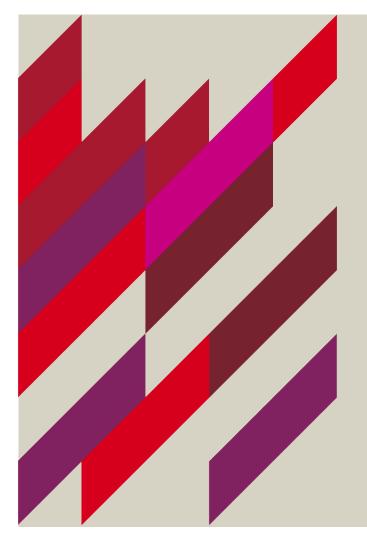
#### **DESIGN BASED RESEARCH**







total emails sent





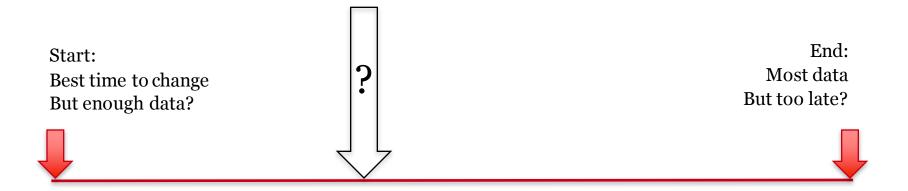
# Temporal analysis

### **Practice: Optimal time**



#### WHEN SHOULD THE TEACHER INTERVENE?

My practice is concerned with answering when is the best time to contact students?



## Research: Optimal time



Used data from MEAP together with historical grades to determine when during a semester MEAP becomes useful to identify students at risk.

Correlated risk scores with grades at different time periods during semester.

Table from Liu Froissard Richards & Atif, 2015b.

Unit	Week 2	Week 4	Week 6	Week 8	Week 10	Week 12
Computing	-0.159	-0.575*	-o.568*	-0.572*	-0.628*	-0.617*
Archaeology	-0.578*	-0.515*	-0.624*	-0.702*	-0.724*	-0.803*
Sociology	-0.397*	-0.396*	-0.521*	-0.576*	-0.532*	-0.614*

Table 2 - Correlation between final grade in each of three undergraduate units and biweekly MEAP risk ratings. Pearson correlation coefficients reported; \* indicates 2-tailed significance at < 0.01 level.

### **Practice: Frequency**



#### HOW OFTEN SHOULD STUDENTS BE CONTACTED?

My practice is also concerned with answering **how frequently should students be contacted?** 

- If students are contact too often, will they "value" the contact less and more likely ignore it? Contact fatigue
- If students are contacted too little, is the impact of the contact sub optimal?

### Research: Frequency



#### HOW OFTEN SHOULD STUDENTS BE CONTACTED?

• We looked at the impact of students' receiving emails using MEAP, results suggested different student profiles and effects.

• Suggests that even if students are contacted once, this could potentially change what they do online. Interestingly may have a greater impact if they are contacted more than once, although unsure.

## Research: Frequency

We examined what three different students who received emails from their unit convenors in their online course during semester 2 2015. We also compared this to their responses to a student survey that explored what they said they did when they were contacted.

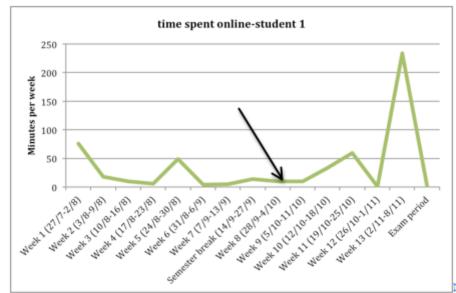


Figure 1: Time student 1 spent online in LMS by week

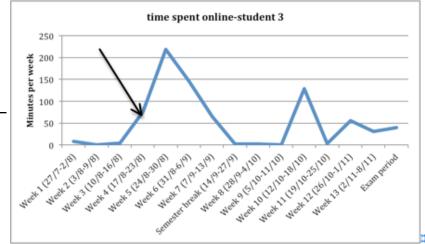


Figure 5: Time student 3 spent online in LMS by week

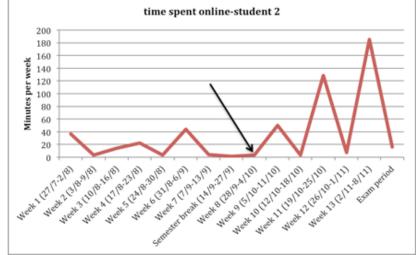


Figure 3: Time student 2 spent online in LMS by week

## **Challenges: Optimal time**



Optimal time, suggests that from about week 4, but by then it might be too late to establish a pattern of online behaviour for the student.

If we want to help a student establish "virtuous behaviour" they should receive information at the beginning of the course or in the first week or so. However we might not have sufficient data at this stage.

## **Challenges: Optimal frequency**



Frequency, whilst one email can be effective, after how many do they start to become ineffective?

We are looking at the impact on students of receiving more than one email.

However this is proving difficult given a number of practical issues:

- 1) teachers are time poor, more likely to send only one email rather than many. Need to work within limitations of practice.
- 2)To measure impact on student motivation and influence rely on student surveys. Leads to incomplete data sets.

### References



Liu, D. Y. T., Froissard, J.-C., Richards, D., & Atif, A. (2015a). Validating the Effectiveness of the Moodle Engagement Analytics Plugin to Predict Student Academic Performance. In Proceedings of the *2015 Americas Conference on Information Systems*, August 13-15. Puerto Rico.

Liu, D. Y. T., Froissard, J.-C., Richards, D., & D., An enhanced learning analytics plugin for Moodle - student engagement and personalised intervention. In Proceedings of the 2015 ASCILITE Conference, 29 November - 2 December, Perth, Australia.

Team: Left to right, Amara Atif, Deborah Richards, Jean-Christophe Froissard, Danny Liu







