OU Analyse

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http://analyse.kmi.open.ac.uk
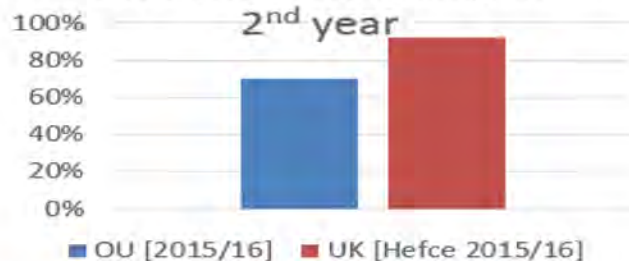
http://kmi.open.ac.uk/

Retention – others & OU

Students that finish the degree

- HE Europe [Quinn 2013]
- HE Distant Ed [Simpson 2010]

On-Track at OU [%]

Year 1, Year 2, Year 3, Year 4, Year 5

Students continuing in 2nd year

- OU [2015/16]
- UK [Hefce 2015/16]

Course retention OU vs MOOCs

- OU Level 1 [2015/16]
- MOOCs [Jordan 2016]

Knowledge Media Institute
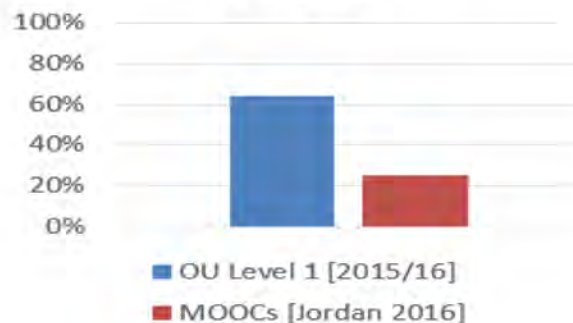
TMA Funnel - predicting TMAs submission

P(FAIL | Fail TMA1) = 0.92

P(FAIL | Not Submit TMA1) = 0.96
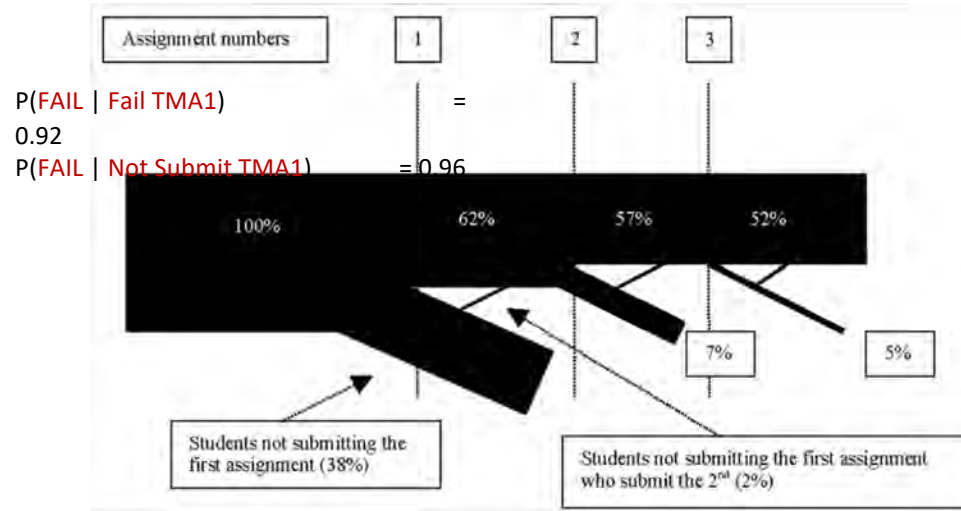
Simpson O.: The impact on retention of interventions to support distance learning student, 2005

OU Analyse History

Pres.	Scope	Delivery
2014B	**2 modules**, selected course members	Excel spreadsheet, sent by email, manually generated
2014J	12 modules, selected course members	Automated pred., excel spreadsheet
2015J	Made available to tutors in selected modules	Dashboard, within OU network
2016J	~1000 users (338 accessed) , 785 tutors (305 accessed)	Dashboard on Internet, no VPN needed, grade predictions
2017J, 18B	37 modules, 375 users (240 accessed), 323 tutors (204 accessed)	Mostly STEM pilots, user acceptance
2018J	**250 modules** in OUA, ~3500 users, including mostly tutors, module chairs, staff tutors, cluster managers, SSTs	Dashboard combining OUA predictions and SIO Student Probabilities

Problem specification – the OU model
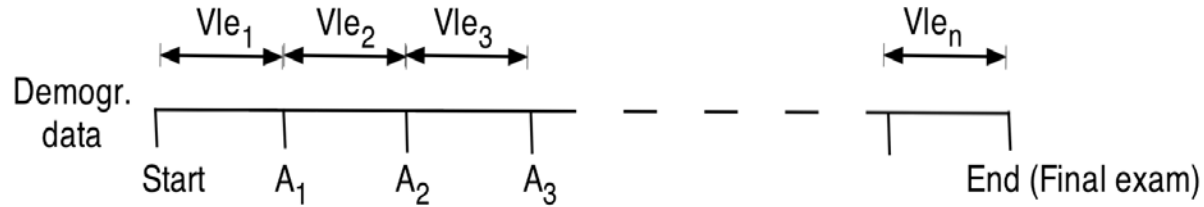
- Given:
  - Demographic (static) data at the Start (may include information about student's previous modules studied at the OU and his/her objectives)
  - Assessments (TMAs) as they are available during the module
  - Fluid data: VLE activities between TMAs
  - Conditions student must satisfy to pass the module
- Goal:
  - Identify students at risk of failing the module as early as possible so that OU intervention is efficient and meaningful.

Available data

- Demographic data: age, gender, new/cont. student, education, IMD, post code, occupation category, motivation, …

- Presentation-related (fluid) data: VLE logs, TMA (score, submission date), CMA, payment dates, TMA/CMA weights, End of module assessment.

- Aggregated VLE data available daily.

Labels of educational resources

Activity type (semantic labels of VLE resources):

- – home_page
- – forum
- – glossary
- – OU_content (web pages)
- – OU_wiki
- – URL (external)
- – resource (pdf)
- – subpage
- – …

Select subset with maximum relevance and minimum redundancy

Selected important VLE activities

- Forum (F), Subpage (S), Resource (R), OU_content (O), No activity (N)

- Possible activity combinations in a week: F, FS, N, O, OF, OFS, OR, ORF, ORFS, ORS, OS, R, RF, RFS, RS, S

(F) (FS) (N) (O) (OF) (OFS) (OR) (ORF) (ORFS) (ORS) (OS) (R) (RF) (RFS) (RS) (S)
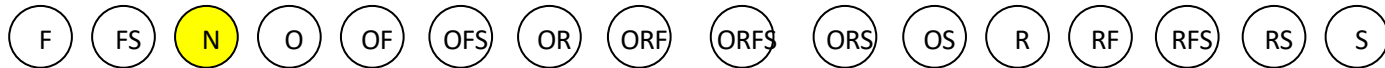
Activity space
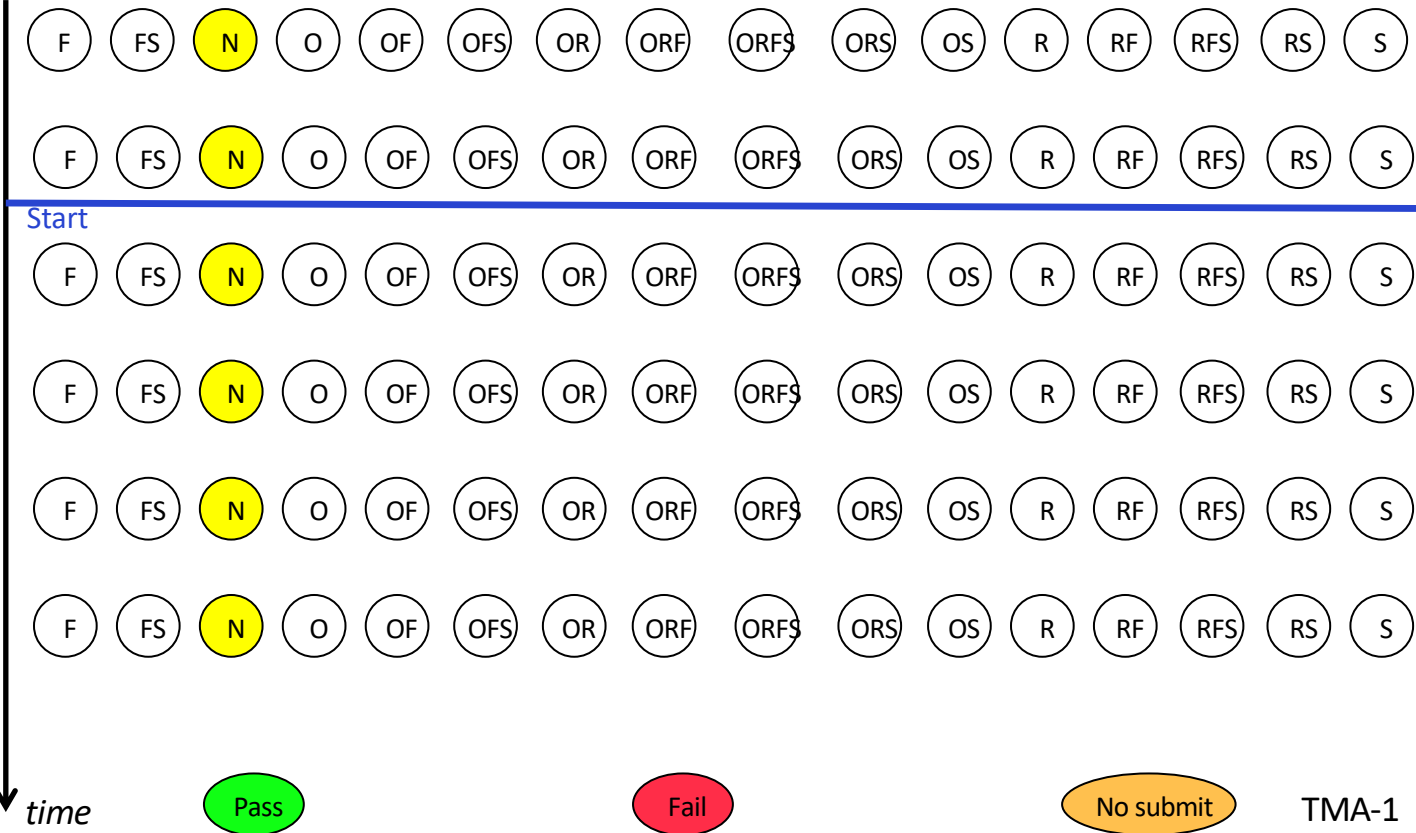
VLE trail: successful student

VLE trail: student who did not submit
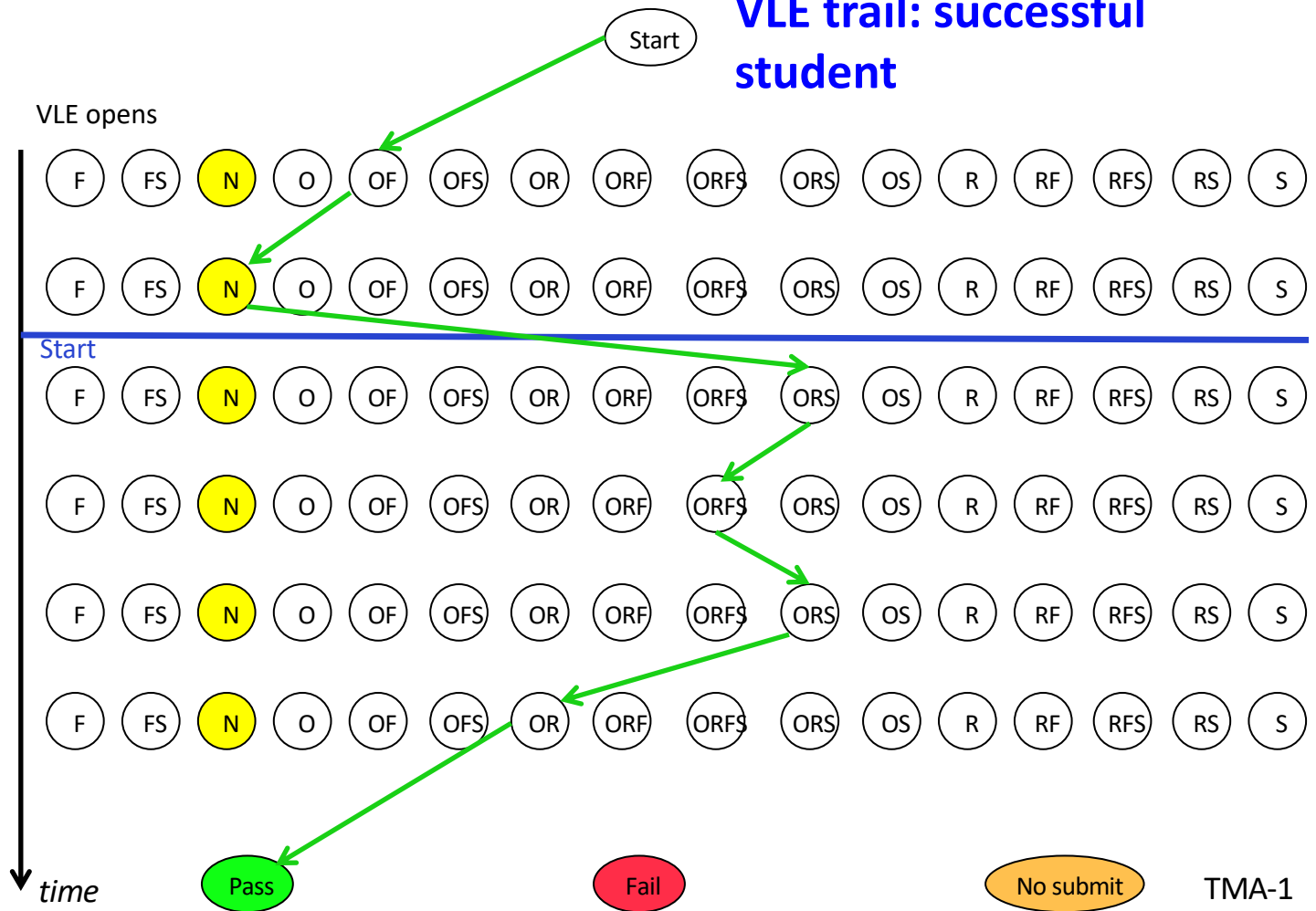
Mapping student engagement with module materials to the activity space

Action/activity type:
- Forum
- **O**u_content
- Ou_wiki
- **U**RL
- **H**omepage
- **S**ubpage
- ...
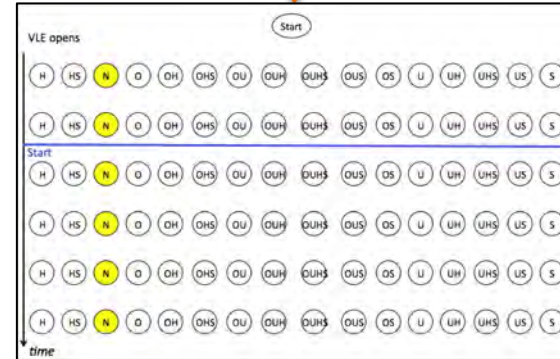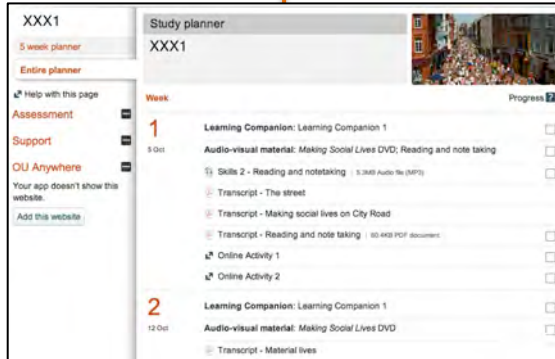
Probabilistic model: all students
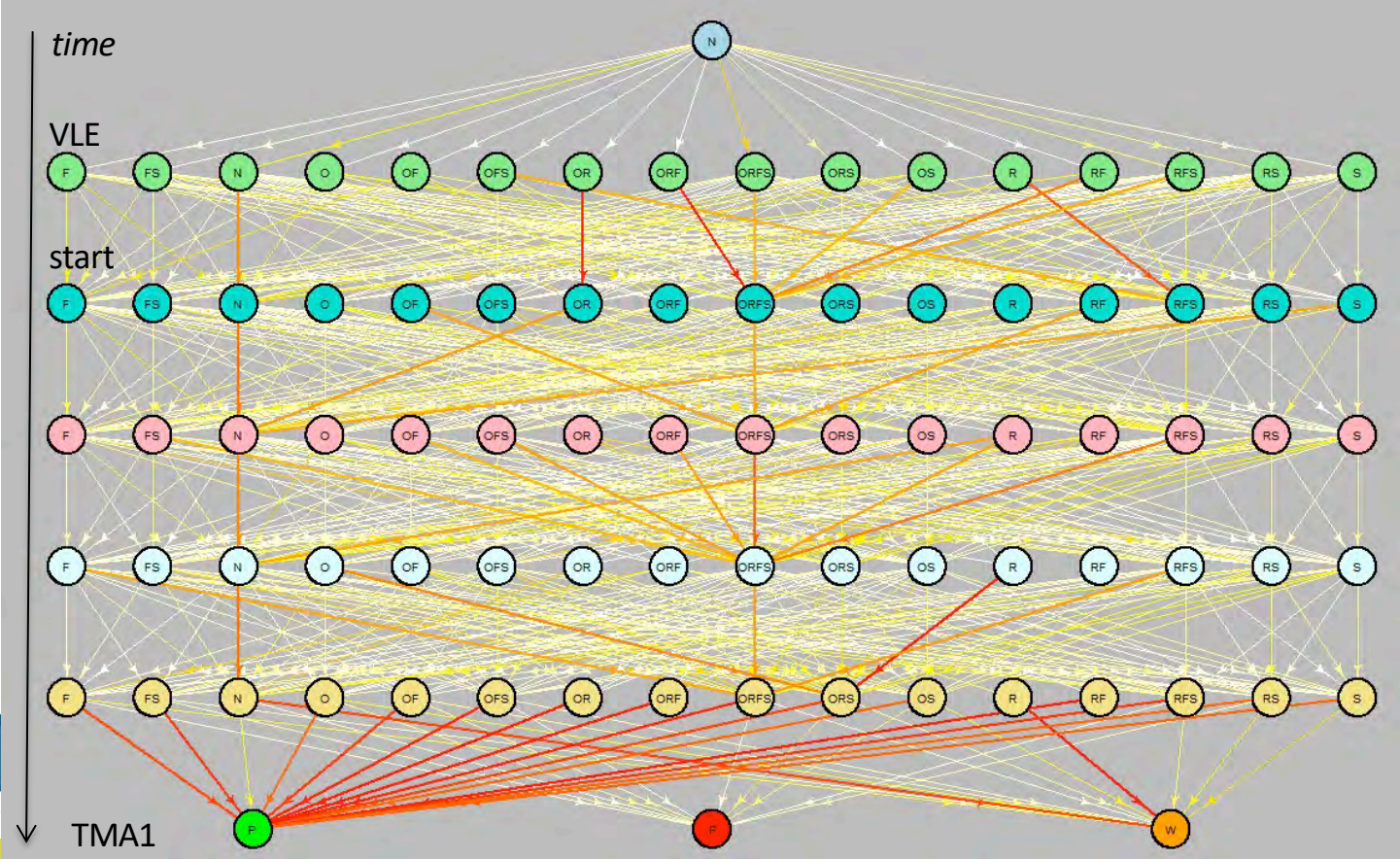
OU Analyse demo

Dashboard: Student View

Nearest neighbours, Predictions with TMA scores, Personalised recommender

Dashboard: Tutor View

Feedback from tutors

Introduction – OU study plan
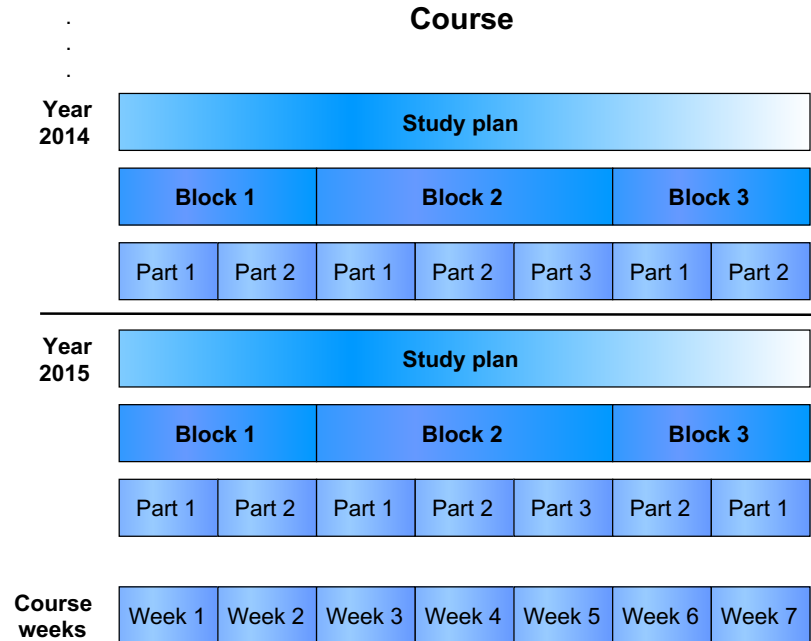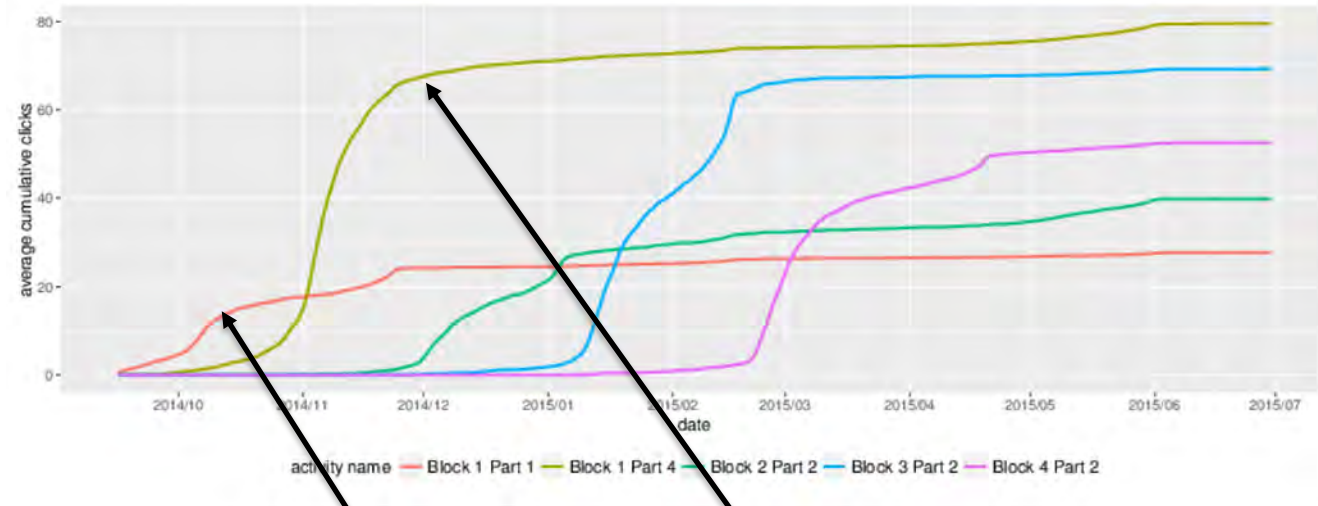
VLE activity
Cumulative form

- The input for our analyze are clicks of learners to particular study materials


Block 1 Part 1   Block 1 Part 4

Cohorts of students

- We divided the students into three groups
  - Excellent students

    >= 75 % of the TMA scores

  - Pass students

    < 75 % & >= 40 % of the TMA scores

  - Fail students

    < 40 % of the TMA scores
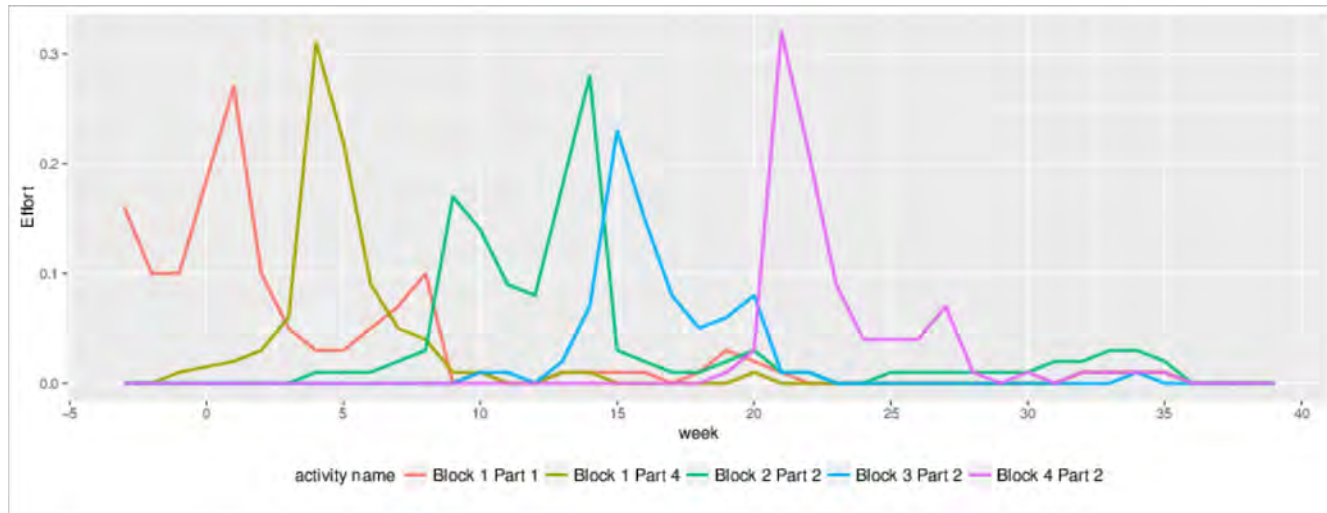
Relevance

Description of the Past

- describes aggregate information about activities of students in some cohort (i.e. excellent) in the past
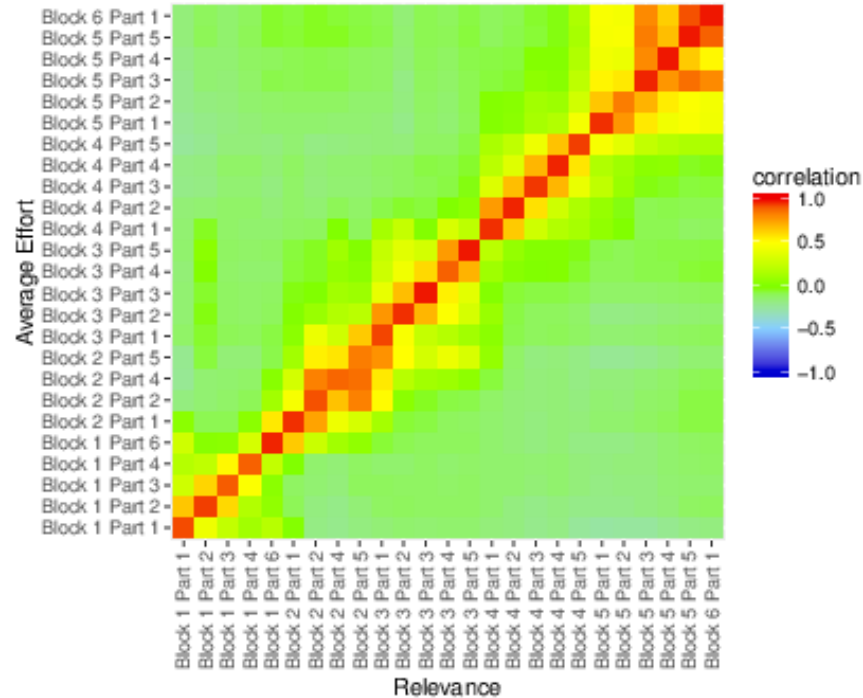- is calculated for each study material
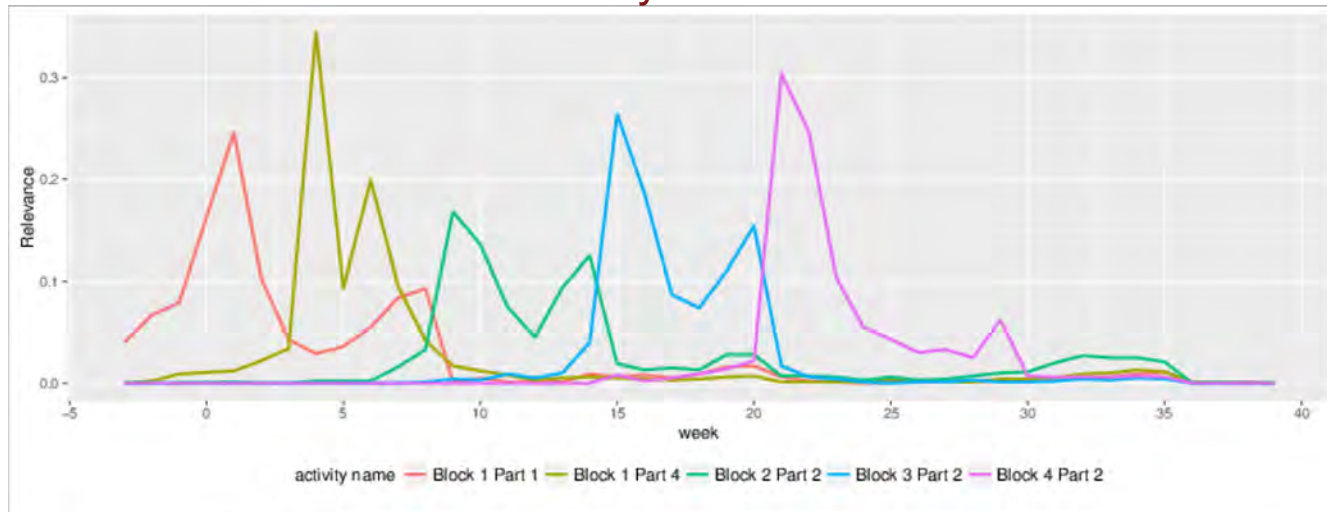
Effort

Description of the Present

- describes student's activity in the current presentation
- is intended for individual students

Comparison of excellent students behavior

2015J
Effort

2014J - Relevance

Student Facing Analytics