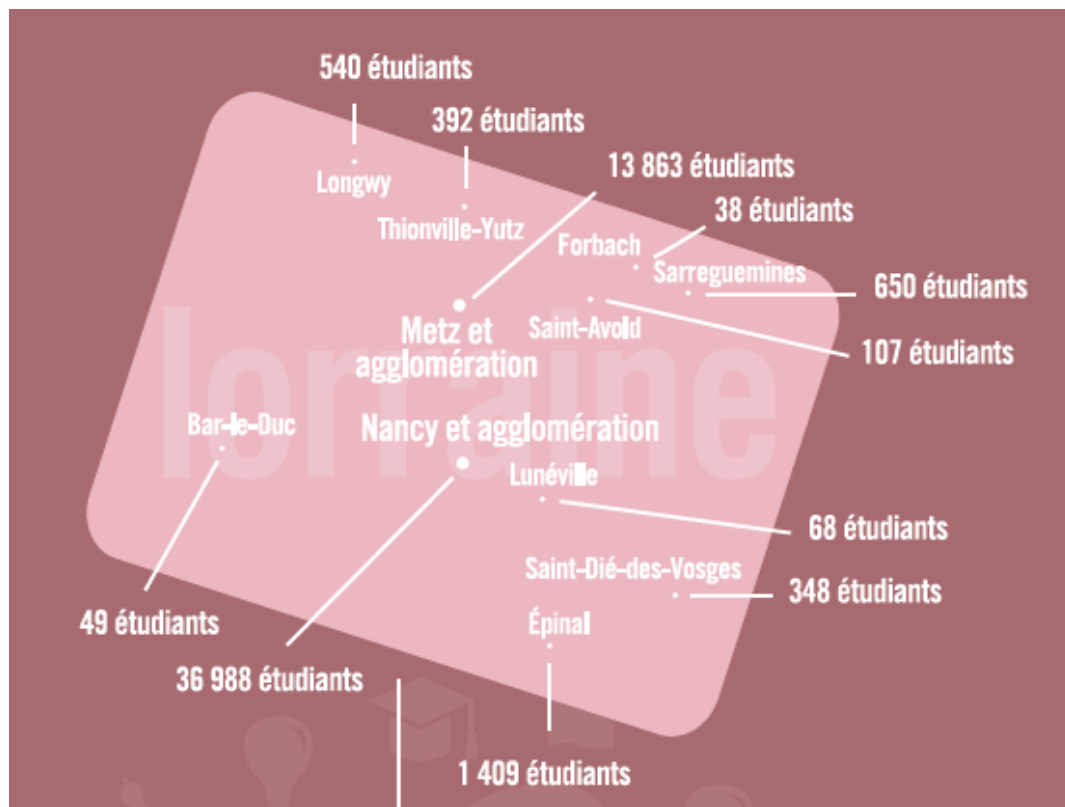


Learning Analytics: Impact and potential at the Université de Lorraine

Anne Boyer
Université de Lorraine, France
Fondation UNIT

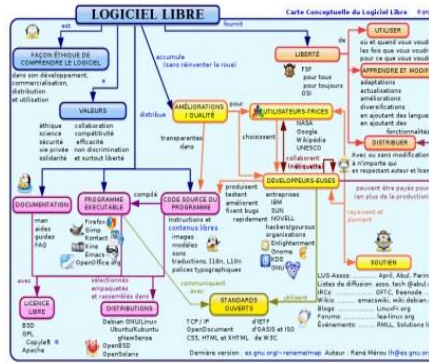
- + 6 700 people
 - 3700 faculty members
- 67 000 students
- all disciplines



11 towns
52 locations
242 buidings
850 000 M²

Bar-le-Duc → Metz : 130 km
 Longwy → Nancy : 120 km
 Longwy → Épinal : 200 km





More than 150 professional software



15000 computers



400 servers



2 000 videos



More than 400 websites



1 700 WiFi hotspots



8 500 online courses + Moocs



For all online services:
61 000 users/mont
4,5 M connections /month

12 M emails/month

37 500 users/month
WIFI

53 000 users/month of the VE

5 M message/month on
forums

20 000 users of the online
documentation since last
september

34 000 users of the mobile

37 000 users/month
of the VLE

Strength lines

- a synergy between the Direction of Information System, research labs and faculty
- the willingness to transform the pedagogy and its environment to make learning more efficient for learners and teaching more comfortable for teachers

Before launching LA...

- Learning Analytics, what for?
- Are Learning Analytics really efficient?
- Are students ready for Learning Analytics?



Learning Analytics, what for?

HE landscape

- the growing number of non-traditional students
 - financially independent
 - with their own dependents
 - work at least part-time
- the redefinition of the role of HEIs in society
 - relationship of a student with his university quickly transitioned from 4 to 40 years (LLL)
 - an increasing demand for post-university learning
- the defunding of HE
 - together with the need (or willingness) to increase the number of HE graduates

CHALLENGES

SOLVABLE

- > Blending Formal and Informal Learning
- > Improving Digital Literacy

DIFFICULT

- > Competing Models of Education
- > Personalizing Learning

WICKED

- > Balancing Our Connected and Unconnected Lives
- > Keeping Education Relevant



NEAR-TERM

1 year or less

- > Bring Your Own Device
- > Learning Analytics and Adaptive Learning

MID-TERM

2-3 years

- > Augmented and Virtual Reality
- > Makerspaces

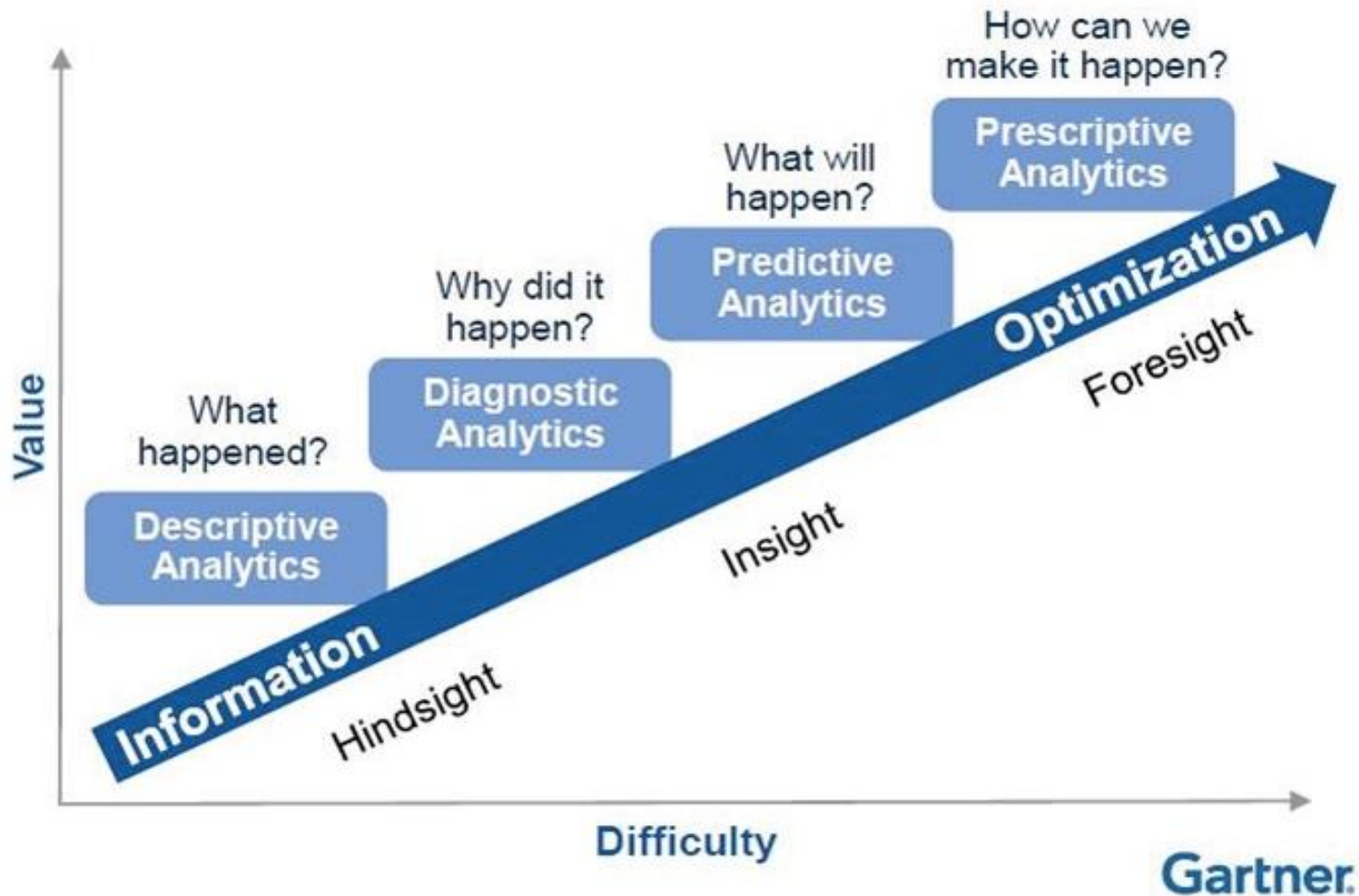
FAR-TERM

4-5 years

- > Affective Computing
- > Robotics

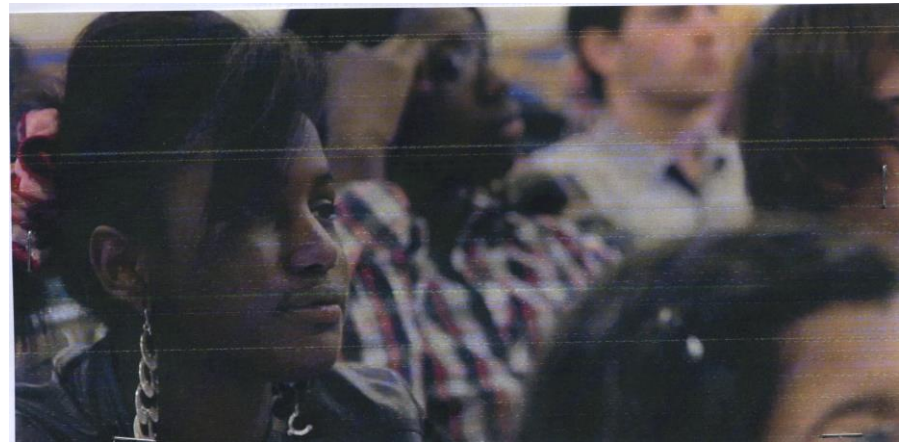
DEVELOPMENTS IN TECHNOLOGY

Analytics, what for?



Three main categories

- indicators and predictors
 - academic performance
 - student engagement
 - early alert systems...
- visualizations
 - dashboard
- interventions
 - as an additional element in a learning design



(Brown 2012)

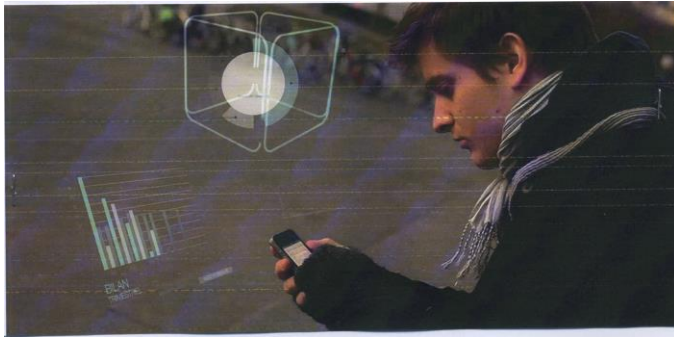
Are Learning Analytics efficient?



VLE use as a proxy for student effort

- strong predictor for final grade
- VLE variables more than 4 times as strongly related to achievement as demographic ones (California State University Chico)
- Civitas Learning: student engagement in VLE is highly predictive of success, even in institution where more courses were primarily face to face

**Are students ready for Learning
Analytics?**



71% of students questioned by Jisc said they would be happy for data such as their library or virtual learning environment usage to be used by their university, if it could help to improve their grades.

12% said they would not.

<https://www.timeshighereducation.com/news/jisc-finds-most-students-happy-share-data-learning-analytics>

Early Alert Systems using Learning Analytics to Determine (and Improve) Student Engagement and Academic Success in a Unit: Student and Teacher Perspectives

November 02, 2016

Amara Atif [amara.atif@mq.edu.au]



STUDENT SURVEYS - METHODOLOGY

The purpose of this survey is to gather feedback to determine the students' attitudes, opinions and preferences with respect to early alerts - how do students respond to receiving an early alert and do their opinions or preferences regarding the early alerts change if they actually receive them.

We surveyed 7,035 students in 17 undergraduate units in semester 2, 2015. 639 responses were deemed complete and usable of which 13% were international students, 62% were first years.

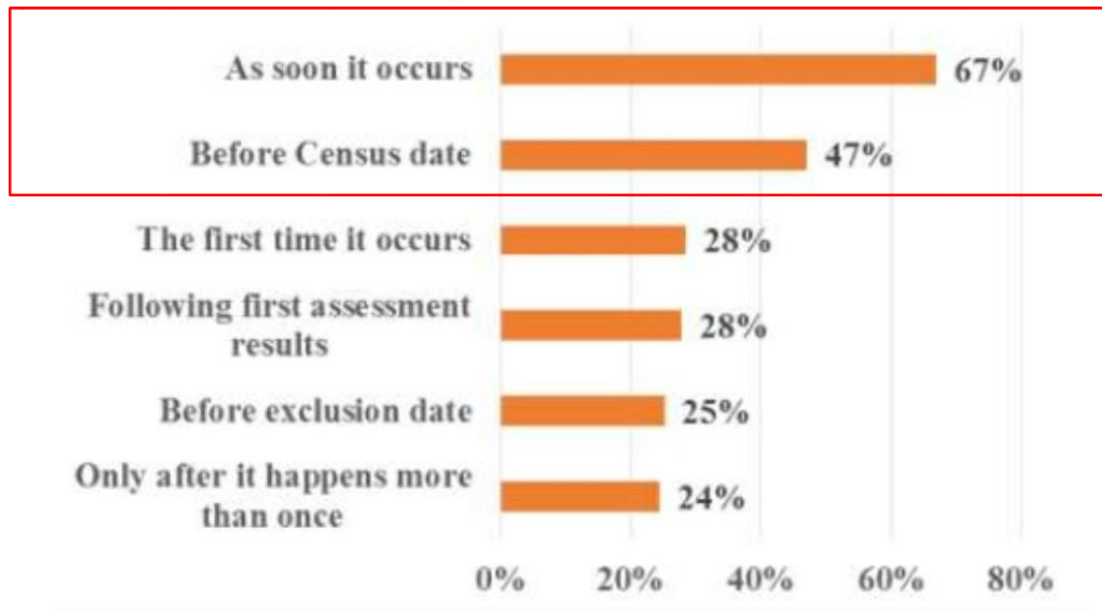
The link to the survey was included in the unit and convenors informed students via announcements in iLearn (Moodle based LMS at MQ).



STUDENT SURVEYS - RESULTS

Do you want to be contacted?

79% wanted to be contacted if their performance in the unit was unsatisfactory

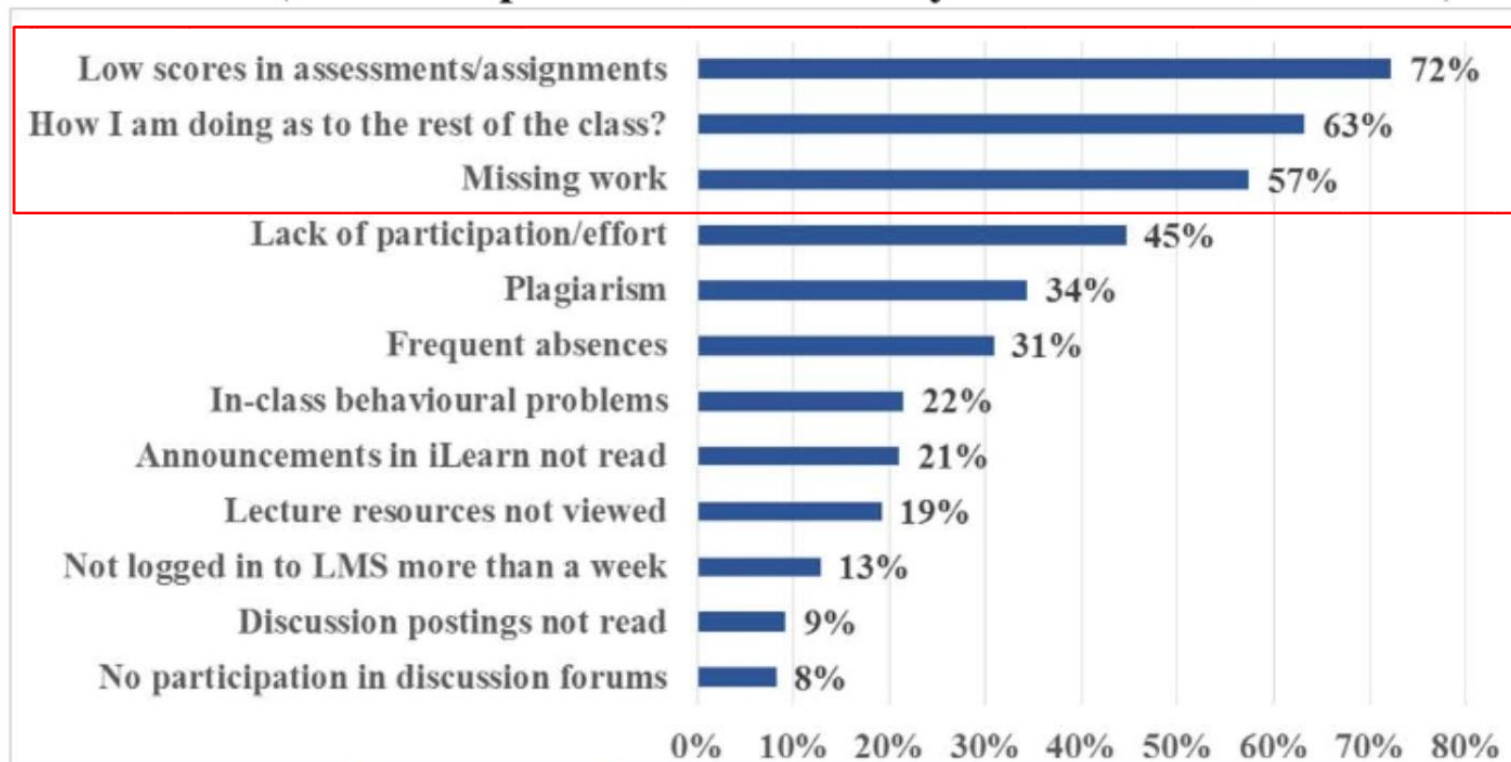


(If yes) When students' like to be contacted?



STUDENT SURVEYS - RESULTS

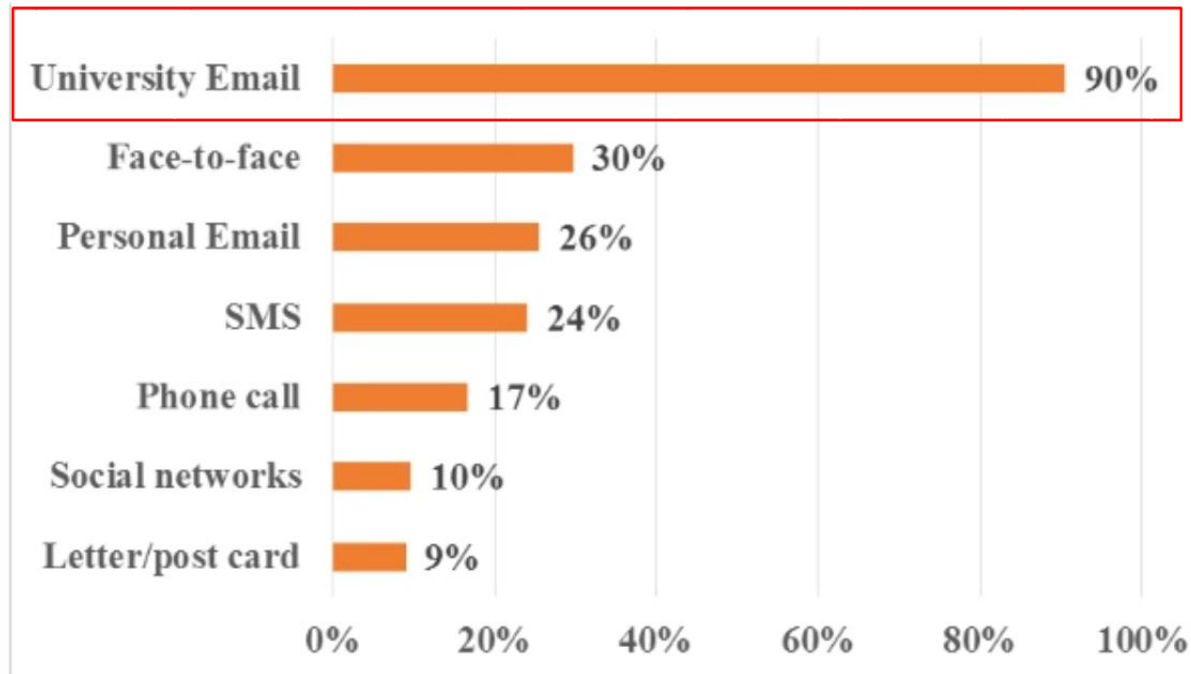
Reason for contact (For what specific behaviours do you want to be contacted?)





STUDENT SURVEYS - RESULTS

How would you like to be advised about opportunities to seek assistance?

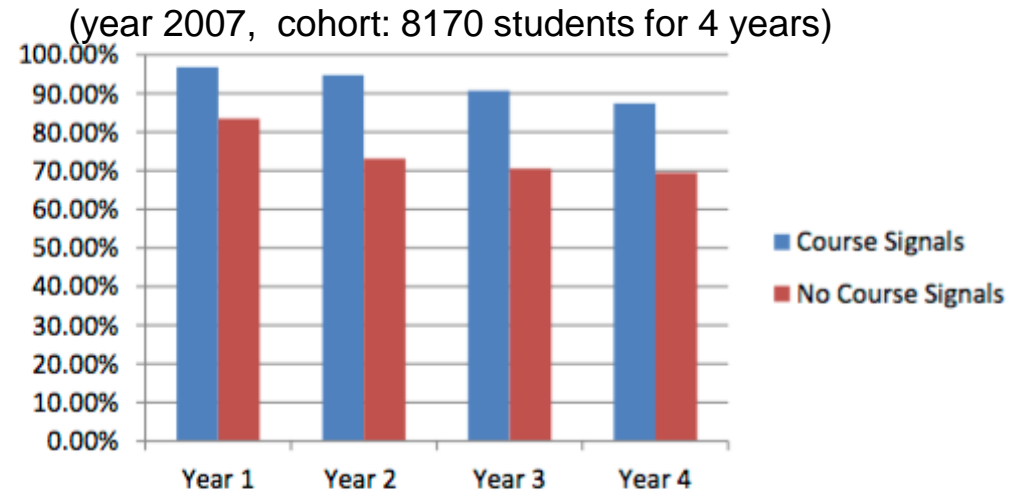


Impact on students behavior

- simply making students aware that they are at risk is sufficient (Marist college)
- students who use a tool to compare their VLE activity with that of others were 1.92 times more likely to be awarded grade C or higher compared with students who did not use it (University of Maryland)
- in a survey of 1st year students at Nottingham Trent University, 27% said they have changed their behavior in response of data on their LA dashboard
 - more academic activities
 - competition to have the highest engagement score

An early alert system: Course Signals (Purdue University)

- predictive model
- provide an early alert warning for students and teachers about the degree of risk associated with failing or succeeding in a course
- launch by the instructor at specific points during the course
- 3 categories:
 - student at high risk of failing a course
 - students at moderate risk of failing a course
 - student not at risk of failing a course



an intuitive metaphor but not sufficient insights for users:
transparency of algorithms

Student retention

evaluation in an undergraduate engineering at Purdue university

Arnold, K. E., & Pistilli, M. D. (2012, April). Course Signals at Purdue: Using learning analytics to increase student success. In *Proceedings of the 2nd International Conference on Learning Analytics and Knowledge* (pp. 267-270).

Focus on 3 LA projects at UL

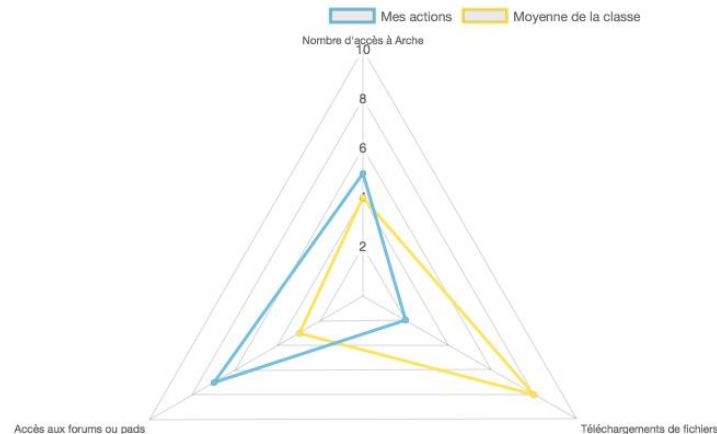
The DUNE EOLE project

- a collaborative team:
 - multi-profile (teachers, researchers, data scientists,)
 - link between research team and operational team
- multisource data: student IS, usage, wifi connections,
- definition of a data infrastructure (link with MENESR & APEREO)
- experiments on different scenarios

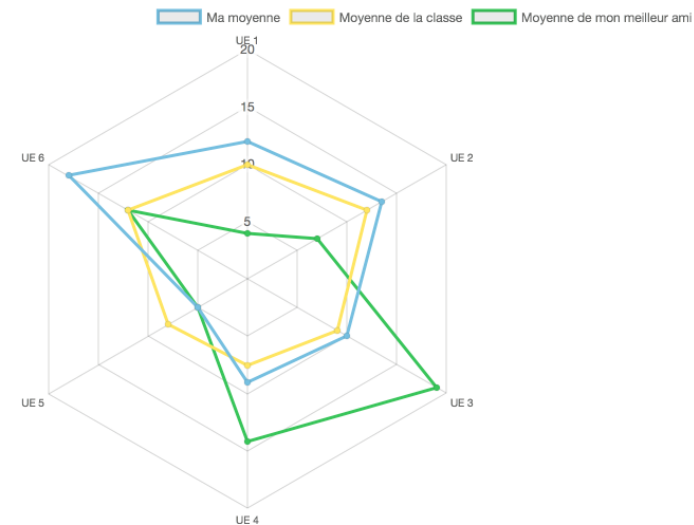
A transversal scenario

- target: first year students (all fields)
- objective: feedback and positioning relatively to peers (and detection of communities)
- ground: using VLE as a proxy for students engagement

Vos actions sur la plateforme Arche



Votre moyenne pour ce semestre



A vertical scenario

- target: students in health sciences (8 years with very hard selections and specialization)
- objective: mine the large amount of data (quizz, exams, activities ...) to better understand the factors explaining some pedagogical situations
- ground: a problem *year 5* could be also explained by what happened first years and then anticipated

Atypical behaviour



Pierre

Ressource 1



30 min



Ressource 2



2 h



Ressource 3



45 min



17/20



Marie

Ressource 1



30 min



Ressource 2



2 h



Ressource 3



45 min



15/20



Léa

Ressource 1



30 min



Ressource 2



2 h



Ressource 3



45 min



8/20



Théo

Ressource 1



30 min



Ressource 2



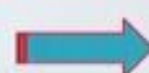
2 h



Ressource 3



45 min



19/20



Pierre



Marie



Léa



Théo

RESSOURCES CONSULTÉES

RECOMMANDATION

Ressource 1



30 min



Ressource 2



2 h



Ressource 3



45 min



Ressource 1



30 min



Ressource 2



2 h



Ressource 3



45 min



Ressource 1



30 min



Ressource 2



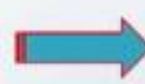
2 h



Ressource 3



45 min



Ressource 1



30 min



Ressource 2



2 h



Ressource 3

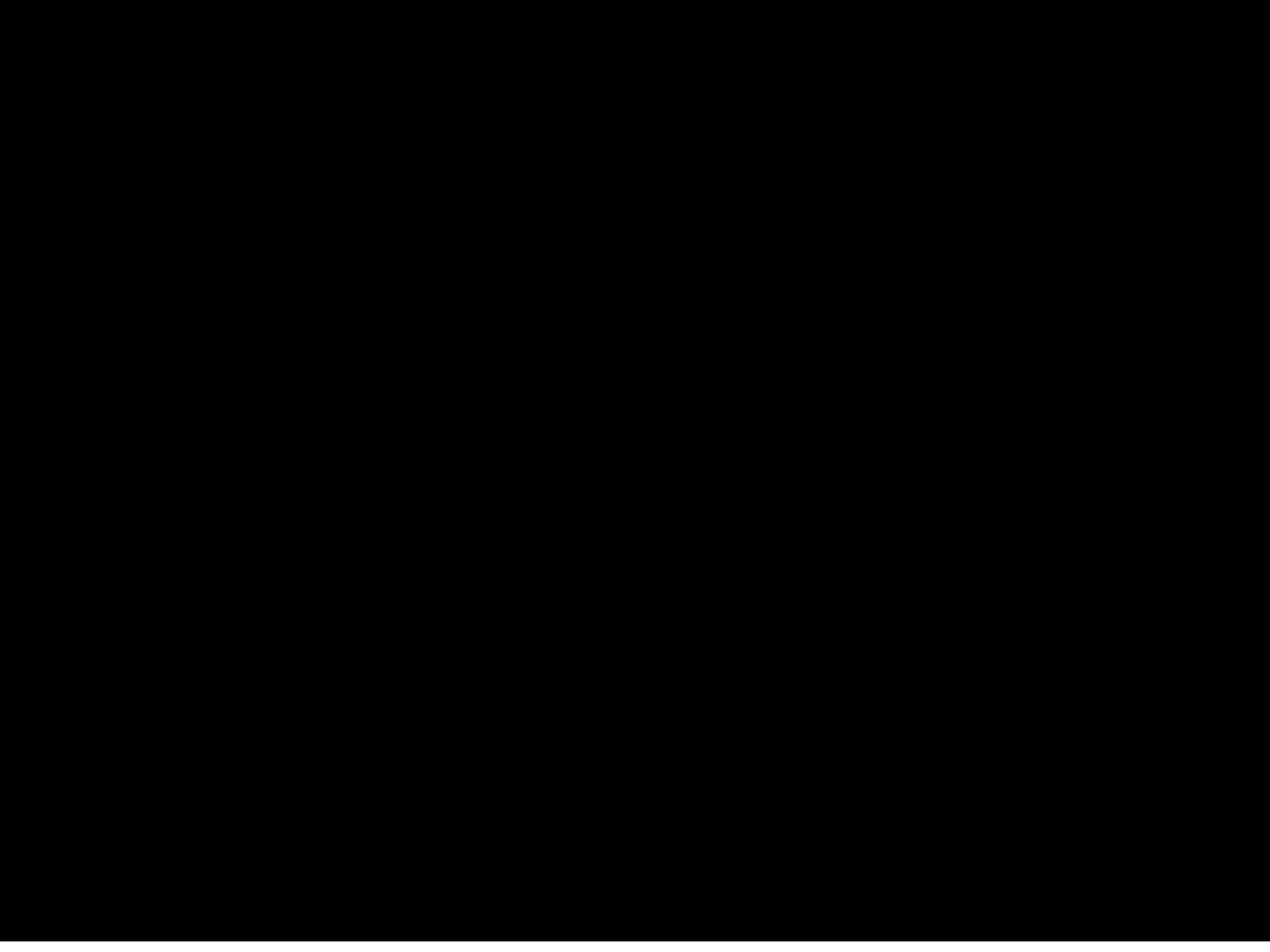


45 min



The digital thematic universities

- more than 34,000 OERs, all produced by teachers from HEIs
- all labeled by scientific and pedagogic experts
- all indexed in SupLOMfr
- all creative commons licensed
- Foundation UNIT: dedicated to Technologies & Engineering Sciences



Extraits

您会汉语吗？

Acheter des fruits

Centre
commun 

您会汉语吗？

Focus on e-PERICLES

Investigation de domaines (Cours : Stockage et traitement des corpus et de l'information avec XML, module 4)

BERGEY Jean-Luc, NGUYEN Van Toan - 2012

UOH université ouverte des humanités

Recommandations

ARCHE

Accès aux Ressources et Cours Hébergés sur l'ENT

Connecté sous le nom « Azim Roussanaly » (Déconnexion)

Accueil Mes cours AI Activer le mode édition

Forum des nouvelles

Section 1

2012-2013

Qui êtes vous ?

Présentations

- Organisation
- Introduction
- Filtrage bayésien
- Filtrage collaboratif
- Filtrage et classification
- Evaluation
- Confiance
- Sécurité

Recommandations UNT

REGLAGES

- Administration du cours
 - Activer le mode édition
 - Paramètres
 - Utilisateurs
 - Filtres
 - Notes
 - Sauvegarde
 - Restauration
 - Importation
 - Personnalisation

DTUs
35,000 OERs
All labeled and indexed in SupLomFR
Web search engine
No precise usage data about the users
(session data)

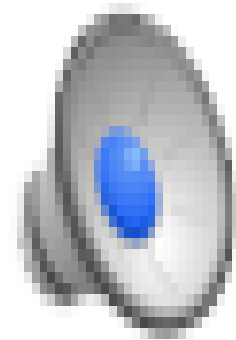
LMS in Université de Lorraine
55,000 learners
No indexing of the educational resources

Precise information about the learners
(usage data)

E-PERICLES
recommendation of OERs

Focus on METAL

- Design, develop & evaluate a toolbox for
 - personalized monitoring of learners to maximize engagement
 - supporting the new role of teachers as a coach
- Application to language learning



EXEMPLE DE PARCOURS OCULAIRE DE LÉA

Les effets d'un mauvais moral

Discipline et punies

Médailles et décorations

La vie dans les tranchées, le foyer des fantassins pendant la majeure partie de la guerre, consistait en une succession quotidienne de corvées et de temps libre.

Branle-bas de combat à l'aurore

Chaque jour, à l'aurore, le moment où habituellement l'ennemi s'attendait à voir se révéler au ciel de « branle-bas de combat » pour gagner les tranchées de la ligne de front. Ensuite, l'ennemi avait pas eu d'excuse à se rassurer pour des inspections, la discipline et leur ration quotidienne de riz.

Un dîner dans les tranchées

Deux soldats mangent des tranches de pain salées à des sacs de sable. Les restes de pain étaient normalement distribués en pain de trois litres partagé entre plusieurs soldats; la nourriture était insipide et monotone mais personne n'a jamais été affamé.

Corvées quotidiennes

Après le branle-bas de combat, l'inspection et le déjeuner, les soldats accomplissaient diverses corvées allant du nettoyage des latrines au remplissage de sacs de sable ou à la réparation des caillabots.

Fixation number	23
Fixation duration mean	295,5
Saccade length mean	143,2
Relative angle saccade mean	1,062
Absolute angle saccade mean	-0,176
...	



As a conclusion

■ privacy, ethics

