Using learning analytics to support applied research and innovation in higher education

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Using LA to support applied research and innovation in HE

UOC

• Fully online university, created in 1994
• +50000 students in 21 degrees, +75 masters, 3 PhDs, ...
• Adult learners, family and work loads, no time to “waste”
• Internet is our physical space

eLC

• Think tank for applied research and innovation at UOC
• Supporting:
  • Educational model
  • Learning resources
  • Technology (classroom)
  • Teacher training

Using LA to support applied research and innovation in HE
UOC as a laboratory

• Dynamic:
  • Under permanent evolution (proprietary virtual campus)
  • Technology-driven (mobile devices, social networks, ...)
  • Standardization

• Multidisciplinary research: A&H, Social, STEM, Health
  • Improve teaching
  • Translational

• Flexible:
  • Plenty of data
  • Different levels of analysis
  • “Sand-box” environment
Learning Analytics

• Defined by G. Siemens in 2010 as:
  “the use of intelligent data, learner-produced data, and analysis models to discover information and social connections for predicting and advising people's learning”

• Rooted in previous research areas:
  • Educational Data Mining
  • Intelligent Tutoring Systems

• It promotes action research and design-based research:
  • Observe
  • Measure
  • Analyze
  • Intervene
Institutional challenges

• LA can (should!) be used to:
  • Know what works and what does not:
    • Teachers’ and managers’ perspective
  • Face complex issues:
    • Course design
    • Dropout
  • Provide teachers with better knowledge about learners’ needs and behavior
  • Provide learners with personalized support and improved feedback
  • Ask the right questions, obtain the right answers!
The eLC datamart (Learning Record Store)

• Premises:
  • Do not interfere with current processes and information systems
  • Seamlessly integrated when possible (virtual classroom)
  • Become a unique entry point for e-learning researchers, practitioners and managers
  • Take care of related issues:
    • Ethics committee
    • Privacy and security
  • Simple, extendable data model \([U(D), T, S, R, X]\)
  • “Cheap and cheerful”
Benefits

• No need to beg for data among different units and IS
• Data quality (and relevance) is assured
• Three access levels:
  • Raw data from the LRS
  • Indicators
  • Dashboards and reporting
• LA is part of all internal innovation projects and research
• Support for decision making:
  • Identifying new trends: learners’ profiles, devices, ...
  • From questions to actions through data
• Share standardized data with other HE institutions
Current and future work

• Fully operational but in continuous development
• Not fully exploited yet:
  • Raise awareness (*what*?):
    • Best practices, publications, projects, ...
  • Lack of data analysis culture / interest (*why*?)
  • Training for non-technical users (*how*?)
• Gather more data, develop more indicators and dashboards
• Position UOC as a strong player in LA arena:
  • Transferable model and technology
  • H2020 projects related to e-learning and LA
  • PhD and PostDoc positions in LA available
Thank you!

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