Open Learning Analytics: Strategic Perspectives

EDUCAUSE VIRTUAL PRE-CONFERENCE SEMINAR 1A: USING ANALYTICS FOR DECISION SUPPORT AND INSTITUTIONAL PLANNING

TUESDAY, OCTOBER 27, 2015
Josh Baron
ASSISTANT VICE PRESIDENT
INFORMATION TECHNOLOGY FOR DIGITAL EDUCATION
MARIST
Presentation Overview

Open Academic Analytics Initiative (OAAI)

Strategic Lessons Learned from the OAAI

Apereo Learning Analytics Initiative

Question and Answer
Open Academic Analytics Initiative

EDUCAUSE Next Generation Learning Challenges (NGLC)

Funded by Bill and Melinda Gates Foundations

$250,000 over a 15 month period

**Goal:** Leverage Big Data concepts to create an *open-source academic early alert system* and research “scaling factors”
OAAI Early Alert System Overview

Step #1: Developed model using historical data

Academic Alert Report (AAR)
Identifies students “at risk” to not complete course

Model Developed Using Historical Data

“Creating an Open Academic Early Alert System”

Intervention Deployed “Awareness” or Online Academic Support Environment (OASE)

SIS Data
Student Aptitude Data (SATs, current GPA, etc.)
Student Demographic Data (Age, gender, etc.)

LMS Data
Sakai Event Log Data
Sakai Gradebook Data
Research Design and Findings

Deployed OAAI system to 2200 students across four institutions
- Two Community Colleges
- Two Historically Black Colleges and Universities

Design > One instructor teaching 3 sections
- One section was control, other 2 were treatment groups

Findings:
- Interventions had a statistically significant impact on course grades
- Predictive models were much more “portable” than expected
More Research Findings...

Strategic Lessons Learned

OPEN ACADEMIC ANALYTICS INITIATIVE (OAAI)
Lesson Learned #1

Openness will play a critical role in the future of Learning Analytics
Intersections between openness and Learning Analytics

Open Source Learning Analytics Software
  - Weka, Kettle, Pentaho, R, Python etc.

Open Standards and APIs for Learning Analytics
  - Experience API (xAPI), IMS Caliper/Sensor API

Open Models - Predictive models, knowledge maps, PMML etc.

Open Content/Access – Journals, whitepapers, policies documents

Openness or Transparency with regards to Ethics/Privacy

NOT anti-commercial – Commercial ecosystems help sustain OSS
Lesson Learned #2
Software Silos Limit Learning Analytics
Software Silos vs. Platforms

Many learning analytics solutions today are “tool” or “software-centric”
- Analytics tools are built into existing software such as the Learning Management System (LMS)

Can make it harder to capture data and integrate across systems (limits Big Data)

A platform solution would allow institutions to collect data from across many systems
- A “modularized platform” approach allows institutions to use all or just some components
- Integration points allow data to “flow” in for processing and results to flow out
Apereo Learning Analytics Initiative (LAI)

OVERVIEW AND UPDATES
Modular Components of an Open Learning Analytics Platform

**Collection** – Standards-based data capture from any potential source using Experience API and/or IMS Caliper/Senor API

**Storage** – Single repository for all learning-related data using Learning Record Store (LRS) standard.

**Analysis** – Flexible Learning Analytics Processor (LAP) that can handle data mining, data processing (ETL), predictive model scoring and reporting.

**Communication** – Dashboard technology for displaying LAP output.

**Action** – LAP output can be fed into other systems to trigger alerts, etc.

---

Library of Open Models

- OpenDashboard
- OpenLRS & Larrisa
- Learning Analytics Processor (LAP)
- Student Information System (SIS)
- Student Success Plan
- Learning Activities Collection (LMS, CMS, Sakai, Drupal, uPortal...)
- TMS LT
- XAPI
- IMS Caliper
Jisc National Learning Analytics Project

- Government funded non-profit that provides technology services to all of UK higher education
- Adopted much of the Apereo LAI platform and openness strategy
- Funding two-year project to create a highly scalable cloud-based learning analytics service
- **All work released under open licenses**
- Initial code release in Spring 2016

Project Blog: http://analytics.jiscinvolve.org/wp
Join the mailing list!
analytics@apereo.org
(subscribe by sending a message to analytics+subscribe@apereo.org)

Looking to learn more?

Apereo Learning Analytics Initiative

Wiki: https://confluence.sakaiproject.org/x/rIB_BQ
GitHub: https://github.com/Apereo-Learning-Analytics-Initiative

Josh Baron: Josh.Baron@marist.edu