Institutional Learning Analytics: How Can Academic Libraries Connect?

CNI Fall 2016
Megan Oakleaf & Malcolm Brown
What do we mean by “learning analytics?”
Learning Analytics

Using and analyzing data, usually big educational data, to advance student success.
How is that different from student learning assessment?
Libraries

Focus
Assessment Arc
Value of Academic Libraries – Initial Report
Library Value

- inherent value of library services, expertise, and resources
- measures of inputs and outputs
- user satisfaction levels
- service quality metrics
- the use and utility of library services, expertise, and resources
- return-on-investment
- worth of the library as a commodity (competing alternatives)

impact on institutional missions, goals, and needs

values, beliefs, intent
Assessment Arc
Value of Academic Libraries - Ongoing
Value of Academic Libraries - Ongoing
An expanding, maturing research area!
Assessment Arc
Learning Analytics or “Library Analytics”?
Moving to an Institutional Focus
Definition of “learning analytics”

“measurement, collection, analysis, and reporting of data about learners and their contexts, for the purposes of understanding and optimizing learning and the environments in which it occurs”

(1st International Conference on Learning Analytics and Knowledge, Banff, Alberta, February 27-March 1, 2011.)
The Progression of Analytics

- **Descriptive Analytics**: What happened?
- **Diagnostic Analytics**: Why did it happen?
- **Predictive Analytics**: What will happen?
- **Prescriptive Analytics**: How can we make it happen?

Business Value:
- Information
- Insight
- Optimization

Data Analytics Sophistication:
- Reports → Correlations → Predictions → Recommendations

Source: Gartner
Actions/Interventions
Where does the data come from?
Pedagogical purpose
Problem Area 1: Organizational Culture
Problem Area 2: Data, Efficacy, & Doubts
What does the learning analytics landscape look like in higher education?

https://www.youtube.com/watch?v=_bewbrPKTwo
Signals (Purdue University, Ellucian)

- Course “traffic” lights (red, yellow, green)
- Student reaction is very positive 
  https://www.youtube.com/watch?v=kURsmrkdS04
- Signals vs Blackboard Retention Center 
  http://www.itap.purdue.edu/learning/innovate/hdiseries/bbanalyticssignals.html#Comparison
- Incorporates PassNote for “customized” student message snippets 
  http://www.itap.purdue.edu/learning/tools/signals/PassNote/index.html
- Video: 
  https://www.youtube.com/watch?v=-BI9E7qP9jA
Student Explorer (University of Michigan)

- Early warning system for advisors
- Identifies at-risk students
- Uses LMS data

https://angel.co/projects/163821-student-explorer-academic-advising-system?src=user_profile
http://digitaleducaDon.umich.edu/dei/student-explorer/
O Pioneers!
Of Analytics and Learning Environments

Malcolm Brown, EDUCAUSE Learning Initiative
The Next Generation Digital Learning Environment

A Report on Research

Malcolm Brown, EDUCAUSE Learning Initiative
Joanne Dehoney, EDUCAUSE
Nancy Millichap, Next Generation Learning Challenges

ELI Paper
April 2015

tinyurl.com/NGDLEreports
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über-application
Next Generation Digital Learning Environment
component architecture
The Future of Education Isn’t Free. It’s Open.

By Stephen Laster   Jan 28, 2016
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learning record store
Learning is happening everywhere. People learn in many places, doing many things.

Collect the experiences that matter. This API records activities and delivers data that is:
- Quantifiable
- Sharable
- Trackable

The Learner

The Tools

The Activities
promote
interoperability
data / semantic

enable
innovation

feed
insights
Building with Legos: UC Berkeley

Jenn Stringer, Oliver Heyer, Sandeep Jayaprakash
Learning Record Store

1. Amazon Web Services-based Learning Record Store
2. Multi-tenant LRS that can support multiple institutions at once
3. Scalability and cost
4. Faster deployments - Lower Dev/Ops overhead
5. Lambda Architecture which encompasses both Batch and Real time streaming capabilities
Student Agency and Privacy
Learning Data Privacy Principles

1. **Ownership**: The UC, faculty, and students retain ownership of the data

2. **Ethical Use**: Learning data is governed by pedagogical and instructional concerns

3. **Transparency**: Data owners have a right to understand the particulars of how their data is collected and used, including transformative outputs (such as visualizations).

4. **Freedom of Expression**: Faculty and students retain the right to communicate with each other without the concern that their data will be mined for unintended or unknown purposes.

5. **Protection**: Stewards will ensure learning data is protected in alignment with regulations regarding secure disposition.

6. **Access and Control**: Data owners have the right to access their data.
Learning Data Recommended Practices

1. Service providers will recognize learning data ownership and access as a right of the faculty and students.
2. Service providers will provide learning data to the institution in recognized standard interoperability formats.
3. Service providers will not charge the university for the right of access of these data.
4. Service providers will inform faculty and students about the learning data they collect and how these data will be used.
5. All service provider platforms will conform with UC and Federally mandated security breach procedures.
6. Students will have a choice about the learning data collected by faculty and service providers in an "opt in" rather than "opt out" approach.
7. Learning data stewards will ensure that all faculty and student data is stored securely in conformance with University data security policy.
Standards: Caliper / xAPI

Adam Recktenwald and Virginia Lacefield
We care about these standards because...

Integration is hard. It shouldn't be harder than it needs to be.

Real-time integration is harder. More moving parts means greater complexity. Simplify wherever possible.

Interaction data is one of our final frontiers of data capture.
Integrations

- SAP SIS, HR, etc.
- myUK Mobile
- ASK Appointment Scheduling
- Academic Early Alerts
- The Study Peer Tutoring
- Echo 360 Lecture Viewing
- Tagger
- SAP Degree Planning
- SAP HANA OLAP + OLTP
- eBars Asset
- myUK Portal
- Canvas API & Real-Time
- Echo 360 ALP Real-Time
- CBORD
- OrgSync Student Clubs
- Housing apps & assignments
- AdAstra

Real-Time

Nightly
Interactions (From a variety of systems) -> Common "Standard" Format -> Single Delivery Point
Caliper event: with context

- Person
- Document
- Tag Annotation
  - ePub
  - tags
- Membership
  - role
  - learner
- Course
  - group
- session
- extensions
- Reader
- edApp
- statement
- actor
- tagged
- action
- object
- membership
- role
- learner
- group
- generated
- time
- eventTime
Discussion
What is the library’s role with respect to institutional learning data and analytics?
“Start Here” Readings
Selected by Samantha Settimio

Data in the Library is Safe, But That’s Not What Data is Meant For: Exploring the Longitudinal, Responsible Use of Library and Institutional Data to Understand and Increase Student Success

Libraries are embracing the ethical use of data to discover correlations between library interactions and student success, but only a few have long histories of correlation research. Join a panel of experienced explorers to learn about the benefits, challenges, and best practices of correlation studies, discover the “state of the art” of established correlation projects, and envision the future of this research stream, including institutional partnerships and learning analytics initiatives that contribute to student success.

Megan Oakleaf; Jan Fransen; Shane Nackerud; Kate Peterson; Ross MacIntyre (JISC); Alison Sharman (Huddersfield); Dennis Krieb (Lewis & Clarke CC)
Closing the ‘Data Gap’ Between Libraries and Learning: The Future of Academic Library Value Creation, Demonstration, and Communication

Library “value” studies require librarians to link library data to institution-level data. However, within libraries and across institutions, many systems that include student success data don’t “talk” to each other. By adopting “interoperability standards,” library data could be integrated with campus systems, exploding the ability of libraries to contribute to student success, enabling librarians to expand studies of library impact, and transforming the documentation and communication of library value. Join us for a lively discussion!

Megan Oakleaf; Rob Abel (IMS Global); Malcolm Brown (EDUCAUSE Learning Initiative); Scott Walter (DePaul)
“Continue here” readings

- Caliper: [https://www.imsglobal.org/activity/caliperram](https://www.imsglobal.org/activity/caliperram)