From Theory to Practice: Leading the Way with Learning Data Principles

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Goals of the presentation

1. Set the context for why these are important and why now
2. Give an overview of the landscape of learning data and analytics
3. Present the IMS principles
4. Present UC Principles and Practices
5. Get feedback in particular:
   a. ownership
   b. efficacy
Background and Other Efforts

- Asilomar II: Student Data and Records in the Digital Era - [https://sites.stanford.edu/asilomar/](https://sites.stanford.edu/asilomar/)
- Responsible Use of Student Data in Higher Education - [http://ru.stanford.edu/](http://ru.stanford.edu/) (Stanford CAROL & Ithaka S+R_)
Definition: Learning Analytics

“The selection, capture and processing of data that will be helpful for students and instructors at the course or individual level.”

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

1 Learning Analytics: The Definitions, the Processes, and the Potential, Tanya Elias, 2011
2 1st International Conference of Learning Analytics & Knowledge, Banff, Alberta 2011
“Learning data refers to data generated by students, faculty, and/or staff that relates to and documents the teaching and learning experience and academic achievement. It can be used alone or combined with the student record and other data points to support student success and research.”

https://www.imsglobal.org/learning-data-analytics-key-principles
Why do we care?

- increase ability to make institutional decisions
- impact student outcomes
- empower students to make changes to their behavior that positively affects their learning
- enable faculty to support students and make changes to their courses based on data
- support faculty teaching and pedagogy
- support educational research
Someone is collecting A LOT of data!

- What: “Clickstream Data” “Logfile Data”
- Who: Vendors, the institution, libraries, publishers, other third-parties
Learning Data

- **“Old Days”**
  - local hosting meant local logs
  - ad-hoc reporting mainly for systems issues
- **“Cloud SaaS”**
  - logs not local and not accessible
  - vendors use to improve systems and troubleshoot issues
- **Contracts**
  - if we have them -- not always specific about ownership of this kind of data
  - they do have security and privacy language
- **No Contract?**
  - goodluck! - at the whim of the third party provider no security/privacy guarantees
Learning Data

- Just the **data** please
  - even if we have “ownership” we need “access”
  - logfile ‘dumps” for historic reporting (nightly, monthly, etc.)
  - realtime for early warning systems, advising, student alerts, etc.

- **Standards**
  - **LTI** - enables interoperability
  - **Caliper and xAPI** - defines learner activity to enable analysis across systems
Case Studies

- **With a contract**
  - LMS - wanted to charge users extra for our data

- **Without a contract**
  - A free platform for instructors to efficiently manage class Q&A. Students can post questions and collaborate to edit responses to these questions. Instructors can also answer questions, endorse student answers, and edit or delete any posted content.
  - Currently collects a TON of this data and the institution can’t get to it
  - Revenue model - match students to potential employers
    - The employers pay a fee
The incredibly easy, completely free Q&A platform

Save time and help students learn using the power of community

- Wiki style format enables collaboration in a single space
- Features LaTeX editor, highlighted syntax and code blocking
- Questions and posts needing immediate action are highlighted
- Instructors endorse answers to keep the class on track
- Anonymous posting encourages every student to participate
- Highly customizable online polls
- Integrates with every major LMS

Students Get Started

Professors and TAs Get Started

View a Real Class

Learn more about how Piazza complies with FERPA

Over 50,000 professors in 1,500 schools and 90 countries have chosen Piazza

Click on an instructor to see why
“If it is free, you are not the customer. You are the product.”

http://blogs.harvard.edu/futureoftheinternet/2012/03/21/meme-patrol-when-something-online-is-free-youre-not-the-customer-youre-the-product/
We're at 1,000 schools in 68 countries
Click a school to see classes and professor stories

Berkeley Classes Using Piazza
473 Instructors and 14797 Students at Berkeley use Piazza in 1285 Classes

**Chem 135: Chemical Biology**
Ming Hammond

- 100% of students participated
- view class report

**CS 61C: Great Ideas in Computer Science**
Michael Franklin, Dan Garcia

- There were 16429 contributions in total
- view class report

**ARCH 205 & 249: Studio One**
Nicholas de Monchaux

- 100% of students participated
- view class report

**COGSCI 131: Computational Mo...**
Kevin Canini, Zeyu Li

- The average response time was 11 minutes
- view class report

**EE 122: Introduction to Commun...**
Yahel Ben-David, Scott Shenker

- There were 3658 contributions in total
- view class report

**CS 61A: The Structure and Interp...**
Richard Lan, Tom Magrino

- There were 16030 contributions in total
- view class report
Finish setting up your Piazza account:

Account Information (required)

Is this your preferred email address: akstring@ucsc.edu

Full Name

Choose Password

Confirm Password

academic Information (required)

What degree are you currently pursuing?

Graduate Program

Select current program...

Major

Enter current major...

Anticipated Completion

Month
Year

☐ I'm not pursuing a degree

This information will be used for collaborative features on Piazza. We will never share your information without your permission.

Where Piazza is an aid in your class, Piazza Careers is an aid in your career. Get discovered by companies instantly.

☐ Career opportunities are relevant to me

☐ I’ve read and accept the terms of service

Continue to Piazza
A little better........
Over 30,000 professors have chosen Piazza
Click on an instructor to see why

Jennifer Schwartz
Stanford Chemistry
"Many of the students who ask questions on Piazza just wouldn't get the opportunity to ask them otherwise."

Ron Lee
UC Berkeley Economics
"I think it improves the learning environment. If students don't talk to other students, Piazza makes it very easy to get a discussion going."

Slobodan Simic
San Jose State Mathematics
"Nowadays, colleagues tell me that their students always ask 'are we going to use Piazza?' It's sort of an expected thing now."

Paul Hegarty
Stanford Computer Science
"In the last few years, Piazza has replaced my entire website."

We're at 1,000 schools in 68 countries
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Stanford
Cal
MIT
Princeton University
Penn
Carnegie Mellon
Georgia Tech
Illinois
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University of Waterloo
University of Texas at Austin
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“In the last few years, Piazza has replaced my entire website.”
“Though few academic libraries are encountering it just yet, it is only a matter of time before higher education institutions integrate learning analytics at every level of the organization.”\textsuperscript{6}

“Learning analytics initiatives pose a myriad of ethical questions. For example, are institutions who possess learning data required to act on it? Might learning data be used to “profile” students?”\textsuperscript{7}

“At institutions that have committed to a learning analytics future, librarians can also ask questions to clarify the library’s role as well as advocate for library inclusion in learning analytics processes.”\textsuperscript{7}

\textsuperscript{6} Bell, Steven. Keeping up with … Learning Analytics. ACRL Blog.  http://www.ala.org/acrl/publications/keeping_up_with/learning_analytics

1. **Ownership**: Faculty, staff, and students generate and own their learning data. As governed by institutional policies, individuals, being owners of the data they generate, have the right to access, port, and control the disposition of their data stored by the institution, its service providers, and their affiliated partners.

2. **Stewardship**: As stewards of learning data, institutions should have a data governance plan and governance policies that protect the data and the interests of its owners. These should transcend, but encompass, existing protocols, such as IRB.

3. **Governance**: Learning data use and retention will be governed by institutional policies, and faculty and students retain the right of data access and retrieval.

4. **Access**: Learning data, whether generated locally or in a vendor-supplied system, is strategic to an institution’s business and mission and must be available to the institution.

5. **Interoperability**: The collection, use, and access to learning data requires institutional and supplier collaboration, which is dependent upon interoperability standards, protocols, data formats, and content to achieve institutions goals.

6. **Efficacy**: Learning data collection, use, and computational transformation is aimed at student and instructor success and instructional concerns through prescriptive, descriptive, or predictive methodologies.

7. **Security & Privacy**: Individuals’ security and privacy relating to collecting, using, and algorithmically transforming learning data is fundamental and must not be treated as optional. It must also be balanced with the effective use of the data.

8. **Transparency**: Individuals have the right to understand the specific reasons, methods, and purposes for which their learning data is collected, used, and transformed. This includes any learning data being shared with third-party service providers and other institutional affiliates or partners. Individuals also have the right to know how their data is transformed and/or used thru processes such as summative or algorithmic modifications, particular outputs, and visualizations.
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The University of California should have a say in how suppliers collect, use, and manage our data.
1. **Ownership:** The University of California (UC), its faculty, and students retain ownership of the data and subsequent computational transformations of the data they produce. Individual data owners have the right to determine how their data will be used. The UC acts as stewards of data on behalf of its faculty and students.

2. **Ethical Use:** Learning data collection, use, and computational transformation are governed by pedagogical and instructional concerns, with an aim toward student success through prescriptive, descriptive, or predictive methodologies. As with grades and other sensitive data, uses of learning analytics should be pursued on a “need to know” basis.

3. **Transparency:** Data owners have a right to understand the specific methods and purposes for which their data are collected, used and transformed, including what data are being transmitted to third-party service providers (and their affiliated partners) and the details of how algorithms are applied that shape summaries, particularly outputs and visualizations.

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

5. **Protection:** Stewards, on behalf of data owners, will ensure learning data are secure and protected in alignment with all federal, state, and university regulations regarding secure disposition.

6. **Access and Control:** Data owners have the right to access their data. Given that faculty and students own their learning data and share in its disposition, access to and ultimate authority and control of the data rests with the faculty and student owners, and the data stewards acting on their behalf. Data retention access and control practices will be governed under UC policies and supplier contractual agreements.
1. **Ownership**: Service providers will recognize learning data ownership and access as a right of the faculty and students.

2. **Usage Right**: Through a user’s profile setting, service providers will enable users to control the use of their intellectual property. Thus, it will be the user’s choice to grant terms such as, “a royalty-free, transferable, perpetual, irrevocable, non-exclusive, worldwide license to reproduce, modify, publish, publicly display, make derivative works.”

3. **Opt-in**: Other than those data elements distinctly required for instruction, where appropriate, students will have a choice about the use of learning data collected by faculty and service providers in an "opt in" rather than "opt out" approach.

4. **Interoperable Data**: Service providers will provide learning data to the institution in recognized standard interoperability format(s) to minimize integration costs, support cross-platform and cross-application uses, and promote institutional and academic analysis and research.

5. **Data without Fees**: Service providers will not charge the faculty, students, or other university learning data stewards for the right of access, including the delivery of these data to the University.

6. **Transparency**: Service providers will inform the UC about the learning data they collect and how these data will be used, which in the course of an academic term shall be based on pedagogical concerns and curricular improvement.

7. **Service Provider Security**: All service provider platforms on which student learning data are stored will conform with UC and state mandated security procedures governing the reporting of unexpected incidents and corrections that may occur.

8. **Campus Security**: UC learning data stewards will ensure that all faculty and student data are stored securely in conformance with University data security policy. Learning data stewards will report any learning data security incidents as appropriate to faculty and students, and will provide information about their remedy.
Questions for discussion

- Ownership - students? instructors? institution? vendor? co-creation?
Questions for discussion

- Efficacy - students? instructors? institution? vendor? co-creation?
Discussion