LEARNING ANALYTICS & PRIVACY
PRIVACY, ETHICS, AND ENABLING THE STUDENT DATA ANALYTICS REVOLUTION

Learning Analytics & Privacy Panel
IAPP Privacy Security Risk 2016
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University Hall at Michigan was constructed in 1871. This building featured an auditorium seating 3000. This at a time when total enrollment at the University was 1200 students. *No small plans were made.*
Birth of the industrial university

- In 1900, enrollment at the University of Michigan had tripled, to 3482, and the industrial era had begun
- In 1950, enrollment expanded by an additional factor of ten, to 43,683
- Michigan became the model of a modern public research university
The 20th Century began with an industrial revolution. Public higher education exploded in scale and bureaucratized, adopting standardized tests, measuring outcomes in credit hours, GPAs, majors, and minors.

Since the 1970’s U-M has worked hard to more deeply personalize education, with richer advising, freshman seminars, CSP, learning communities, and more. Doing this at scale is difficult and costly. So what has been done reaches most students very thinly...
The 21st Century began with an information revolution. Public higher education has been slow to respond. But change has begun: practically all information is online, classes are flipping, many educational activities are digitally mediated. The real revolution will come from personalization.
PERSONALIZING EDUCATION AT SCALE

- We must be able to attend to every student:
  - **As a person**, with evolving background, interests, goals, identity, concerns, purpose, affect, well-being
  - **As a student**: we need to see what they do, assess what they know, represent their skills

- We must measure and report what matters: the elements of a liberal education
  - Intellectual breadth, disciplinary depth, range of experience, sustained engagement with desirable difficulties, networks of social and professional connection

- We must be able to act at scale:
  - Explore and understand, attend to everyone in real time, deliver actionable information to students, faculty, and staff
Personalization in a Michigan education

• Personalization today
  - **In courses:** instructors know a little, see students often, and personalize as they can
  - **In advising:** academic advisors know more, and provide (occasional) one-on-one attention to every student

• Future personalization
  - Every interaction should be appropriately aware of student details
  - Each should act on these in ways informed by data (past experience) and expertise
  - The manner and modes of interaction should also be personalized to enhance their impact
Learning Analytics: What do we measure?

- What we measure now:
  - Admissions information
  - Course taking & grades
  - Degrees & honors
- What we’re starting to record: explosive growth!
  - Process of learning: clickstreams, discussions, video, course structures
  - Products of learning: MC, forum posts, essays

- What we want to have: Detailed, evolving portraits of every student’s background, interests, goals and accomplishments
- These portraits should be used to offer admission, monitor progress, decide on graduation, and represent success
Measuring what matters

- Liberal education is more than a list of classes and grades
  - Intellectual breadth
  - Disciplinary depth
  - Range of experience
  - Engagement & effort
  - Social & professional networks
- Important outcomes are long term - we need to see beyond campus

- A multidimensional portrait of student progress
- Multiple forms of commitment and success encouraged and recognized
- Authentic goals reinforced and key outcomes noted
- Redefining student success
Applying these principles: e.g. “predictive modeling”

- Many early learning analytics applications use past performance of students to construct “predictive models”
- These models are really just reports of what’s happened in the past: they predict the future only if nothing changes

- How to act when past students haven’t achieved their goals?
  - “Drown the bunnies”
  - Respond with new, personalized systems of support, test and refine them

- We learn from the past in order to change the future
ADDRESSING THE LONG TERM

• To fully understand our impact, we should know
  - More about where students come from
  - More about what they do while with us
  - More about what they do after they leave us

• Exploring life-long impact of education, including connections to future employment and beyond
ENGAGING WITH STUDENTS

• When students come to Michigan, they become part of a University community that includes not only themselves but also faculty, staff, and alumni.
• Being part of any community brings expectations.
• Leveraging student data (both about who they are and what they do) is a prerequisite to developing tools that can effectively personalize.
• Awareness and Explanation of these expectations is key.
PUTTING DATA TO WORK

• The next frontier: use technology to put data in people’s hands. By doing this, we support decision making, trigger personal connections, motivate action, and guide behavior change.

• **DIG**: the UM Digital Innovation Greenhouse has been established to take good ideas developed on campus from innovation to infrastructure, personalizing education at scale!
DIG WAS BORN TO SOLVE A RECURRING PROBLEM

- Faculty innovators create IT tools which make education > personal, engaged, and life-long.
- Research teams test them, demonstrating effectiveness: they’re ready to spread!
- Then they hit the entrepreneurial “valley of death” between innovation and infrastructure
- These innovations need a nurturing place to mature and spread, both on-campus and off
This is how we DIG

The University Community

Communities of practice: faculty, students, staff

Innovators & pioneering adopters

DIG team of Developers, U/X Designers, Behavioral Scientists

University IT: support at scale

Startups

Other Schools
Students are our best creative engine: Fellows, Design Jams & Hackathons!
DIG projects: A rapidly growing portfolio

- **Academic Reporting Tools ART 2.0**
  - Academic Data to Help Make Choices

- **Student Explorer**
  - Early Warning System for Students

- **E Coach**
  - Personalized Messaging to Students

- **GradeCraft**
  - Gameful Pedagogy for Learning

- **M-Write**
  - Writing-to-Learn Pedagogies at Scale

- **Policymaker**
  - Role-Playing Simulations
DIG, PERSONALIZATION AND THE FUTURE OF HIGHER EDUCATION

- We are building tools which expose information, enabling everyone on campus to learn from the experience of all.
- We are exploring ways to use data to personalize the UM experience, refining advice, enhancing connection, and encouraging better experiences.

Technology driven personalization will be a part of higher education (and life!) in the 21st century. Let’s get it right.
BIG PICTURE GOALS

• Personalized education should be:
  - **Ubiquitous**: every interaction should be appropriately aware of & responsive to human details
  - **Informative**: all people (faculty, staff, and students) should act in ways wisely informed by both data and expertise
  - **Adaptive**: not only content, but also the manner and modes of interaction should also be personalized to enhance their impact
if your shop assistant was an app …
(hidden camera)

[If Your Shop Assistant Was an App (Hidden Camera).
<https://www.youtube.com/watch?v=xYZtHIPktQg>.]
what if your university was an app ... ?
a security camera ... ?
a police officer ... ?
a shop assistant ... ?
your employer ... ?
your landlord ... ?
your physician ... ?
your instructor ... ?
your attorney ... ?
your coach ... ?
your isp ... ?
your gym ... ?
your facebook friend...?
what if your university was an XYZ …

and you were the student?
kent wada
ucla chief privacy officer
director, strategic IT policy

privacy, ethics, and enabling the student data analytics revolution

iapp p.s.r. 2016
san jose, ca
threshold concerns | history* says...

- data may be “hard”, but not necessarily unbiased
- data, once collected, can rarely be “uncollected”
- data, once collected, will always find another use (intended or not)
- the rules change
threshold concerns

- when data:
  - are used to make decisions about people
  - are collected about people without their knowledge or consent
  - about people are used in unexpected ways without subjects’ knowledge or consent
  - are shared with external entities
- technological design as policy making
- academic freedom and shared governance
nouveau concerns:

- opacity of risk
- algorithmic ("objective") transparency
- big, messy data
- new definition of pii
nouveau concerns II
standing on the shoulders of giants

- rights to metadata, algorithms, and analytics

[Cartoon: Facebook and You]
[Based on a timeline developed by Sol Bermann, Privacy Oficer, IT Policy, Compliance, Enterprise Continuity Strategist, at the University of Michigan.]
DATA

research
student success
cybersecurity
precision medicine
admissions

opportunities

legal and policy frameworks no longer provide sufficient guidance

compliance
autonomy
fairness
privacy
transparency

consequences
hipaa
irb
campus
governance
for
data about people
“blank check”
DATA STEWARDSHIP
goals of the campus governance mechanism

- enabling opportunities for use of (academic) data
  - data is an asset
  - data is a competitive advantage
  - data has value
- resolving legitimate disagreements and provide a path forward
- building a common set of expectations about appropriate data use
- promoting transparency and open discussion

building on existing principles

- Belmont principles
- Fair Information Practices Principles
- UC Statement of Privacy Values and Principles
- UCLA True Bruin
- UCLA Principles of Community
- UCLA Principles of Scholarly Research and Public Records Requests
too little, too late?
big data
Proposed “data concierge service” helps to route inquiries

Currently, individuals must know where to inquire about data use.

Institutional Review Boards

Human research

(e.g.) FERPA, HIPAA, compliance responsibility

CA Public Records Act

(e.g.) data breach, cloud services

Data governance

Board on Privacy and Data Protection

Institutional and precedent-setting issues
DATA

opportunities

arc of leadership

consequences
HOW DID THINGS GO? (WE REALLY WANT TO KNOW!)

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- Start by opening the IAPP Events App.
- Select this session and tap “Click the following link for speaker evaluations.”
- Once you’ve answered all three questions, tap “Done” and you’re all set.
- Thank you!