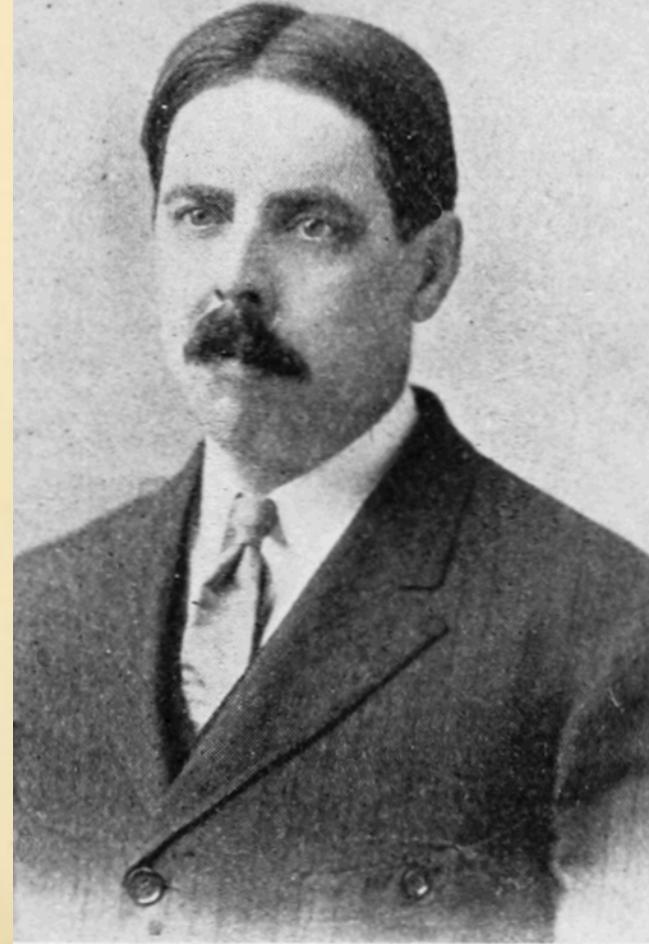
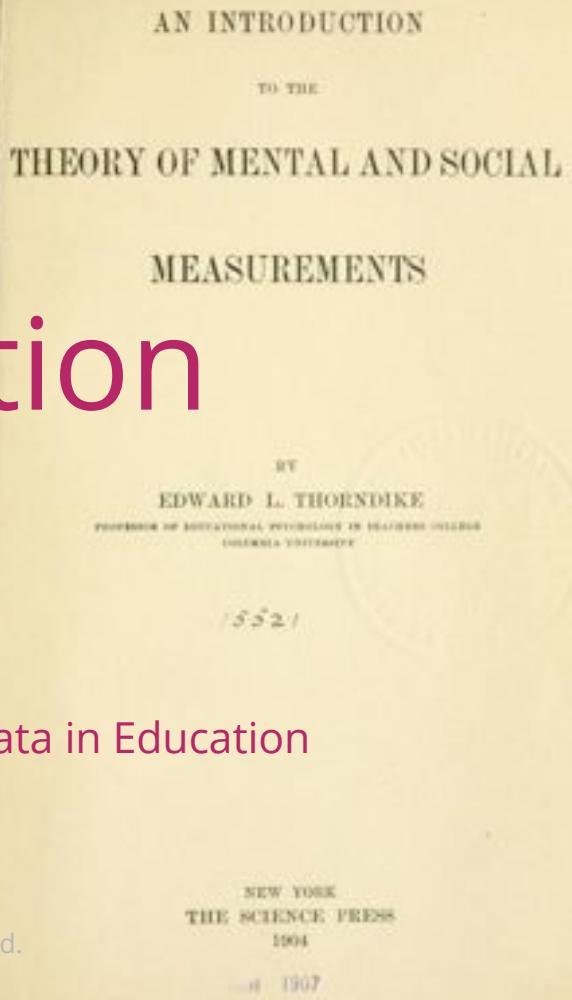


Big Data in Education

by Piotr Mitros
Chief Scientist, edX
at NSF Workshop on Big Data in Education
on January 30, 2015

This presentation can and should be shared.





Grade 8
Mathematics

Mathematics

Mathematics

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Mathematics

Communities

- I. Psychometrics → Traditional statistics, assessment and measurement
- II. EDM/AI-ED → Computer scientists interested in education
- III. LAK → Educators interested in technology
- IV. (And quite a few others)

2000


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30 students

10,000 students

0.2 std. div

0.01 std. div

Summary data

Complete clickstream

Individual activity

Cross-activity

Single discipline

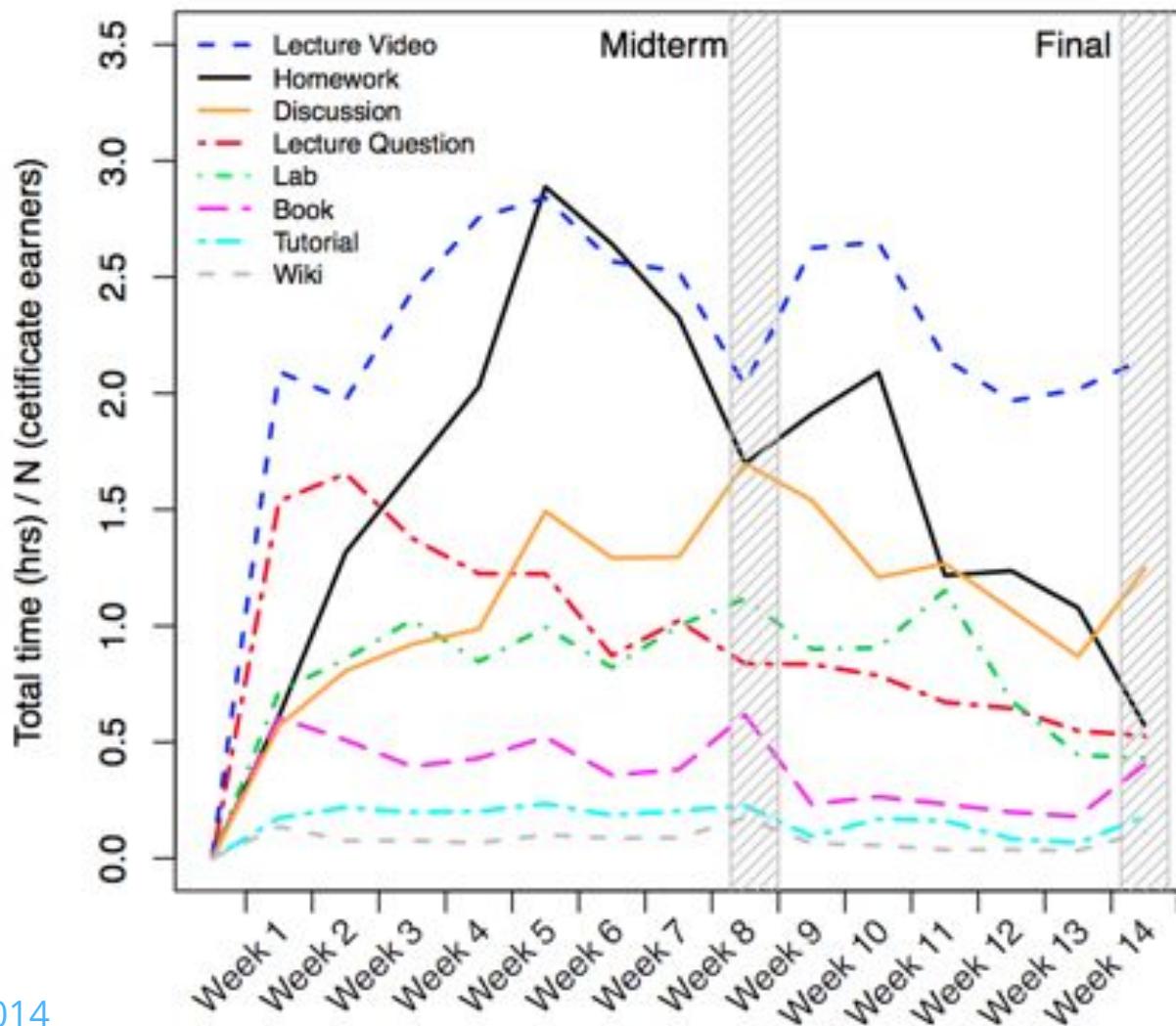
All disciplines

Metrics vs. KPIs

Summative → formative

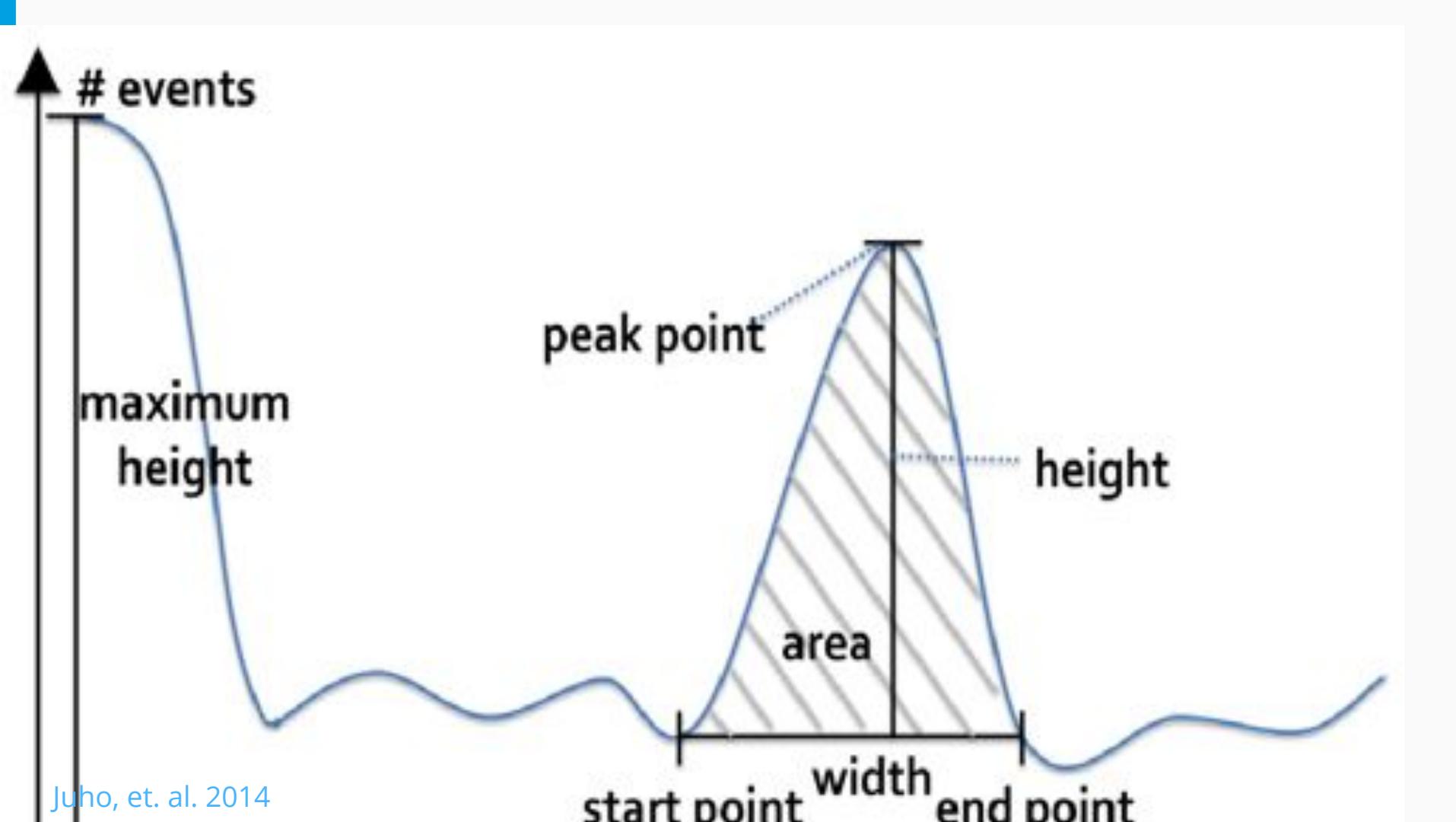
Measurement → learning

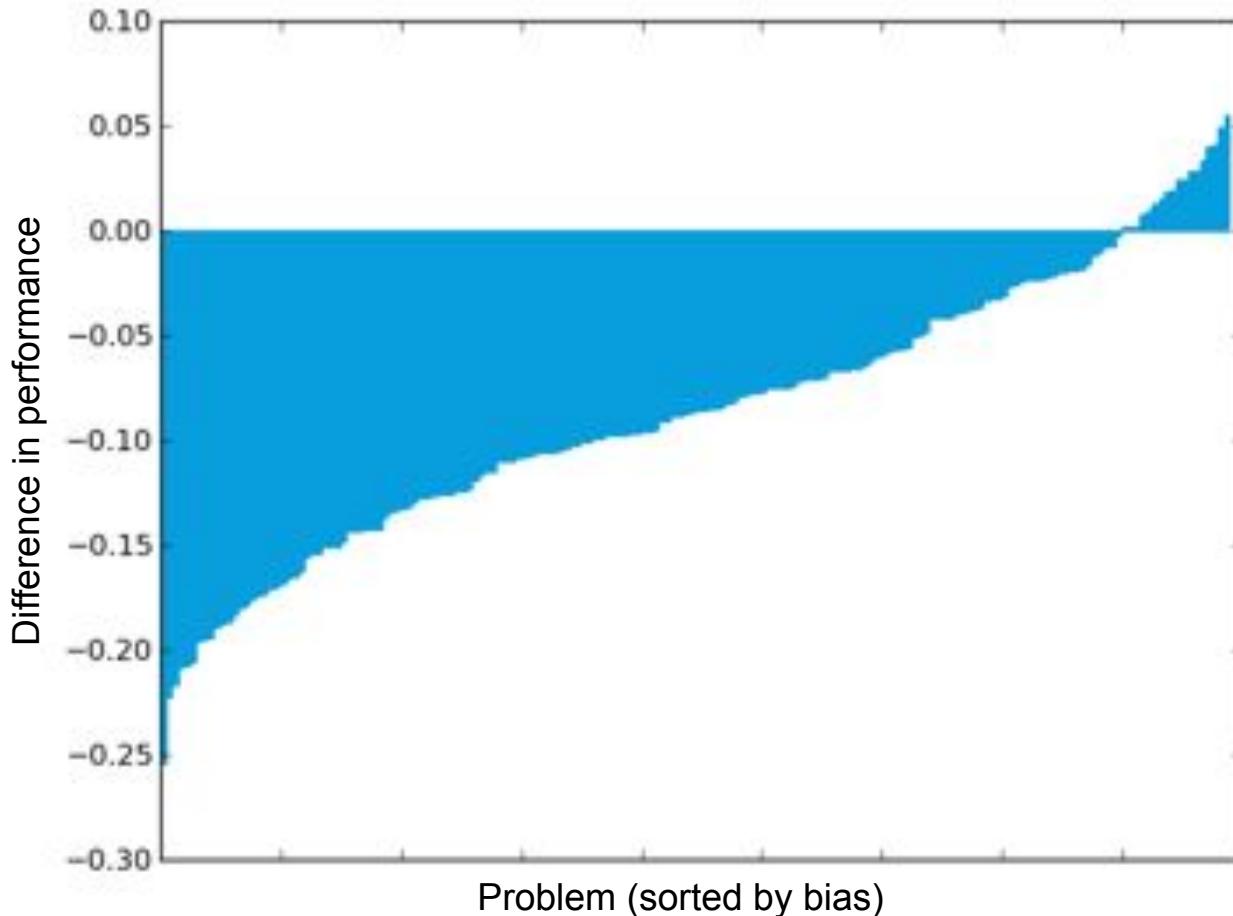
(Often confused with quantitative vs. qualitative)



Seaton, et. al. 2014

edX





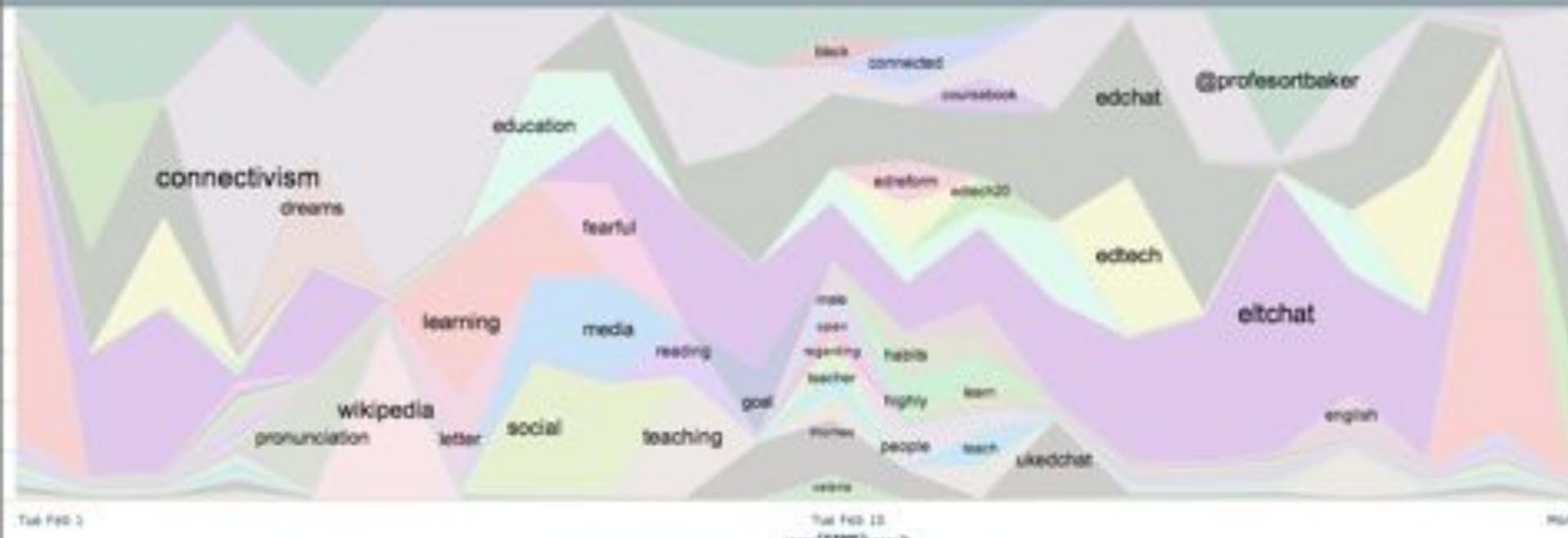
ICTA : Visualization

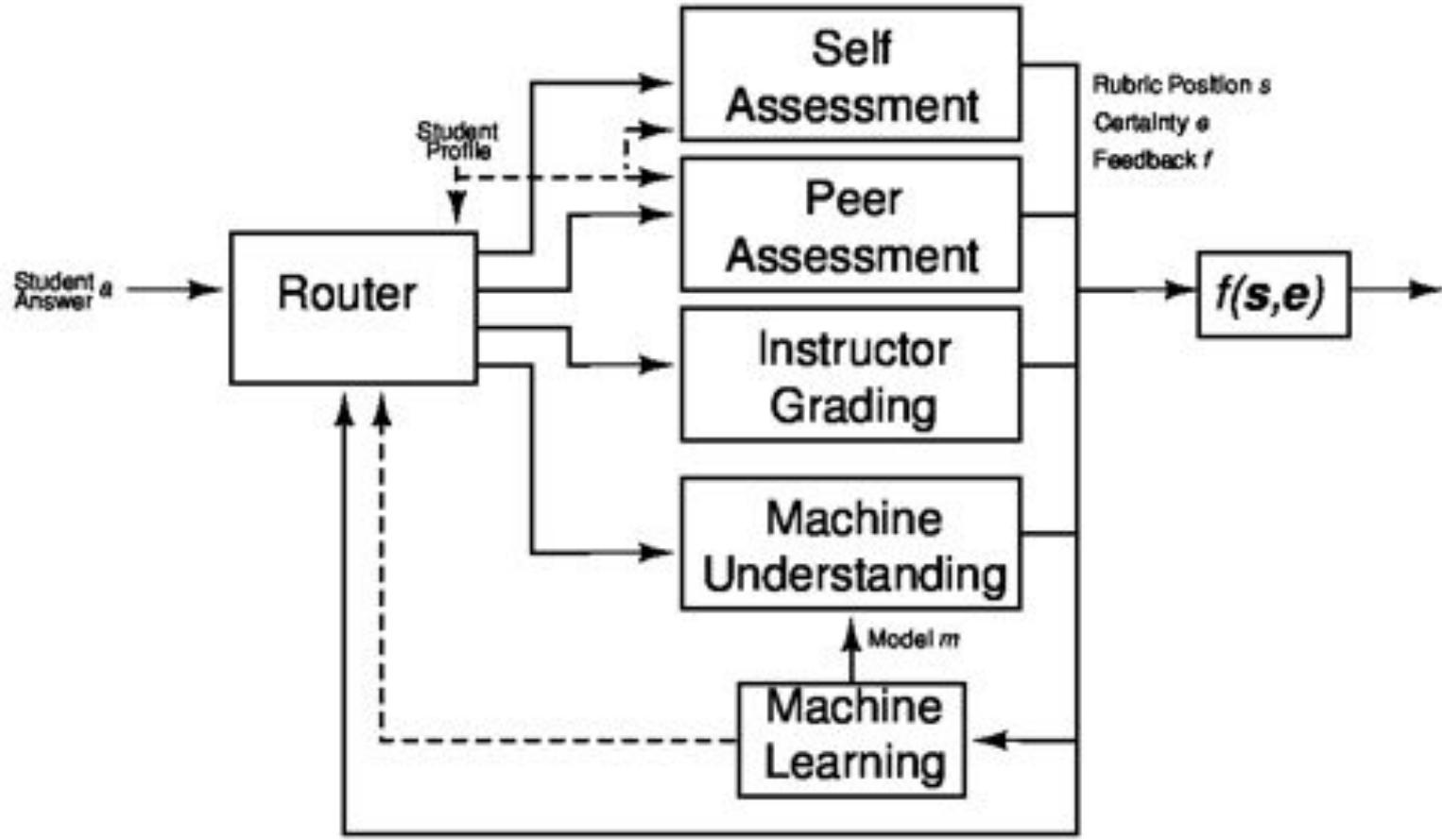
https://netytic.org/viz/5/viz5stack.php?vizcode=200&id=6972&datasetname=LASI_CCK_11_Twitter%20-%20sample

TOP TOPICS

Notes:

- (1) Click on a topic for more info.
- (2) The filled area shows how popular a particular topic was at a specific point in time relative to other topics that were also popular at that same point in time.





Project Grader: Who or what makes federal (national) laws in the US?

10:46 Home Recent

Details

x178 congress

congress: Who or what makes federal (national) laws in the US?

x115 senate

senate: Who or what makes federal (national) laws in the US?

x12 house and senate

house and senate: Who or what makes federal (national) laws in the US?

x12 the legislative branch (house of representatives and the senate)

legislative branch: Who or what makes federal (national) laws in the US?

x11 senate and house of representatives

senate and house of representatives: Who or what makes federal (national) laws in the US?

x11 [incorrect]

incorrect: Who or what makes federal (national) laws in the US?

x27 president, congress

president, congress: Who or what makes federal (national) laws in the US?

x10 judicial branch

judicial branch: Who or what makes federal (national) laws in the US?

x15 government

government: Who or what makes federal (national) laws in the US?

1 subcluster selected

Mark Unread Flag

Grading

Incomplete Partial Correct

Feedback

Clear Save

Access Key

Q: Who or what makes federal (national) laws in the US?

Congress
Senate and House
Senate and House of Representatives

Basu, et. al. 2014

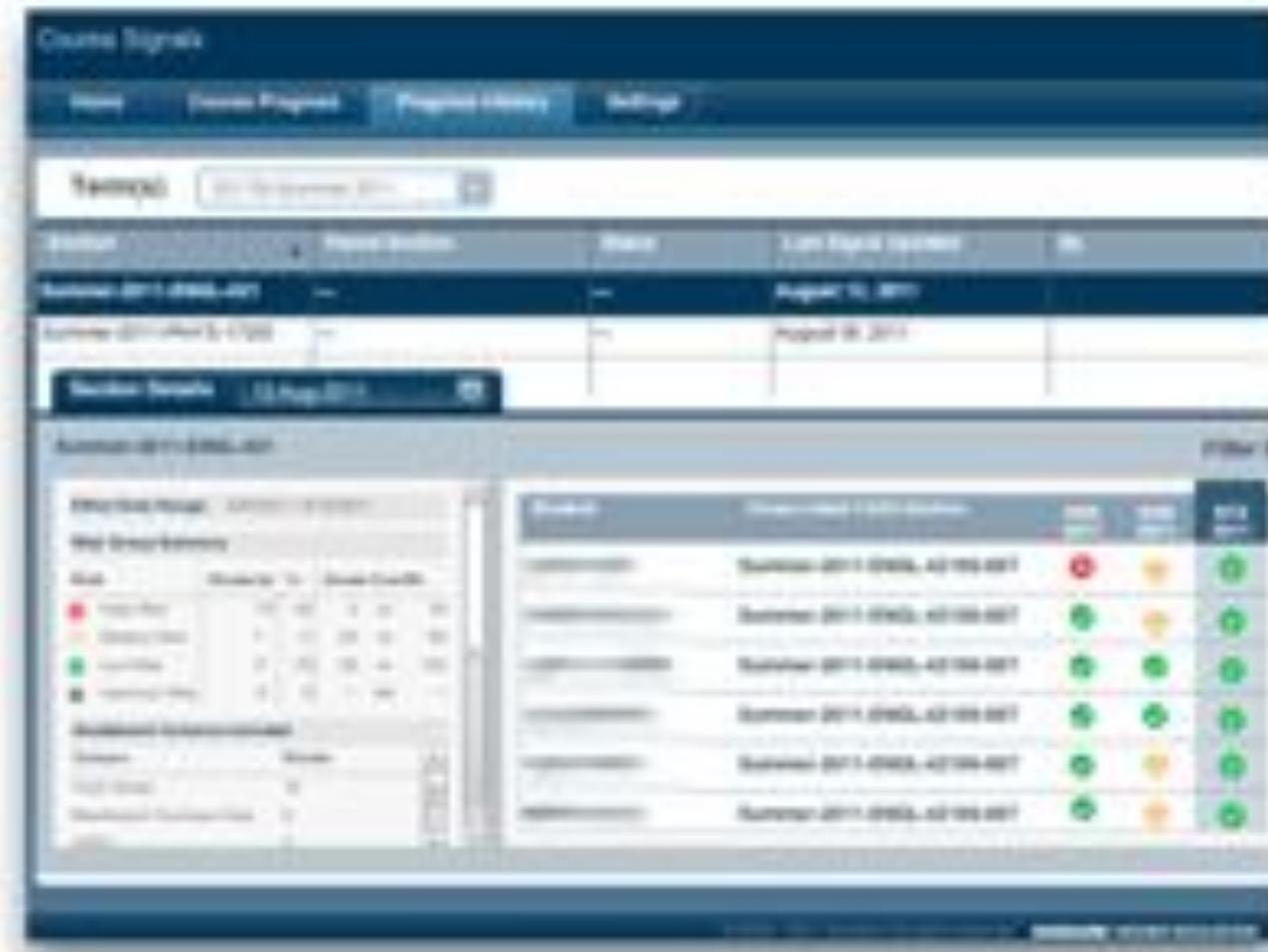
Common research questions

- I. Who are my students? What do they know? How do they behave?
How are they feeling? How likely are they to succeed?
- II. How is my course? What resources are working? Which ones aren't?
- III. Which courses should I recommend to students?
- IV. How are they communicating?

Challenges

- I. Privacy
- II. Velocity: speed * size with JOINs
- III. Integration
- IV. Training
- V. Communications

Questions?



Purdue Signals

The edX logo consists of the word "edX" in a stylized font. The letters "e" and "d" are in pink, while "X" is in blue with a white upward-pointing arrow through it.

Most data isn't "big," and businesses are wasting money pretending it is



THE CHRONICLE OF HIGHER EDUCATION

January 10, 2013

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Do Your Job Better



Comments (55)

June 17, 2013

Giving Employers What They Don't Really Want

By Robert J. Sternberg

Often what we think other people think is not what they think. For example, Michael Barnes and I conducted a study some years

