Learning Analytics

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CYCLES OF DATA COLLECTION DRIVE EFFECTIVE INSTRUCTION

PIVOT
Adjust my approach to address what I have learned.

PLAN AND TEACH
Implement changes to my instruction.

ANALYZE
Pinpoint misconceptions, struggles, and competencies.

ASSESS
Take stock of the depth of understanding.

source: Teachers Know Best: Making Data Work for Teachers and Students, June 2015, Gates Foundation
What are Teachers Saying

What’s going wrong? What’s my next step as an instructor? What’s the cause?

Brian M. – Writing, U. Mass

5 – 10 students per class don’t matriculate. Reasons often reside outside of classroom.

Scott R. – Intro to Med, U. of Indiana

I hate using my time inefficiently. Why waste my time when students don’t use feedback?

Kirsten M. – Probability & Stats., Kaplan
What are Teachers Saying

• More than 8 in 10 are constantly looking for ways to engage students based on who they are
• Nearly 8 in 10 teachers believe that data help validate where their students are and where they can go

source: Teachers Know Best: Making Data Work for Teachers and Students, June 2015, Gates Foundation
A Few Examples
Alexa Lane said: Writing down anonymous answers can help prevent groupthink

Lewis George said: I think that conformity pressures and groupthink were the underlying causes of the poor decision making.

What went wrong in the Challenger Situation?
The average submission time in comparison to assignment due time at All O’Clock.
Challenges

- Multi-mode course delivery: can useful analytics exist that apply to all course modes?
- How is our understanding of student learning limited by data generated in any given educational model?
Teaching ≠ Learning
Tug of war
“The fullest representations of humanity show people to be curious, vital, and self-motivated.”

Can analytics target mindsets?

Can analytics increase time-on-task?

“The greater the effort to retrieve learning, provided that you succeed, the more learning is strengthened by retrieval.”

Dunlosky et al
Not just, "How do you learn?"
But also, "How do you learn?"
“...self-monitoring has direct impact on the level and quality of study and therefore, overall learning progression and academic achievement”

Dunlosky & Thiede, 1998
Cycles of Data Collection Drive Effective Instruction

PIVOT
Adjust my approach to address what I have learned.

SELF

PLAN AND TEACH
Implement changes to my instruction: learning

ANALYZE
Pinpoint misconceptions, struggles, and competencies.

ASSESS
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"Present [analytics] as a guide for sense-making that can empower students to take responsibility for regulating their own learning processes."

Wise, Zhao, Hausknect (2013)
Can we treat **causes**? Can our students?

**Things analytics won’t affect**
- Institutional commitment
- High school academic experience
- Finances / socio-economics

**Things analytics might affect**
- Goal-setting
- Mindset, motivation
- Learning habits / academic skills
- Metacognition, reflection

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BREAKOUT TOPICS

TEACHERS & ANALYTICS
What are the most important, pressing questions that instructors have about courses they teach?
What data is required to answer these questions?

STUDENTS & ANALYTICS
What do students need to know about their own learning to improve their learning habits?
How do we present this data to them so that they will want to use it?

ROOM 309

ROOM 308
REFERENCES


