

Openness, Data, and the Future of Education

David Wiley, PhD

Department of Instructional Psychology & Technology

Brigham Young University



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2

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3 SCHOOL GOVERN

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STIGHT CHESTIFF MAPPING SOCIAL NETWORKS, SPATTAL DATIA & HIDDEN POPULATIONS 🎑

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USING ETHNOGAPANC DATTA [A]



raining Complex Cognitive Skills



Instructional Design



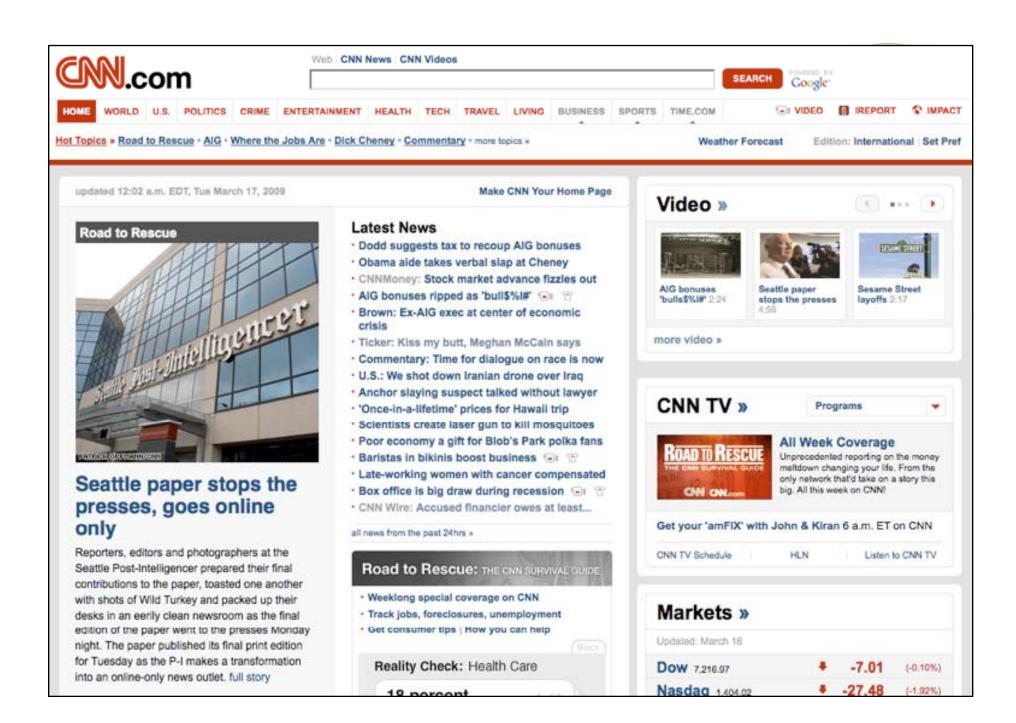
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Small (c) Problems

Just because you <u>can</u> copy doesn't mean you're allowed to



Open Educational Resources

Hacking (c) to leverage the nonrivalrous nature of digital educational materials



Open, adj.

Providing users a collection of rights called "the four R's" - for free

The 4 Rs



Reuse - verbatim copies

Redistribute - share copies

Revise - make adaptations

Remix - combinations / mashups



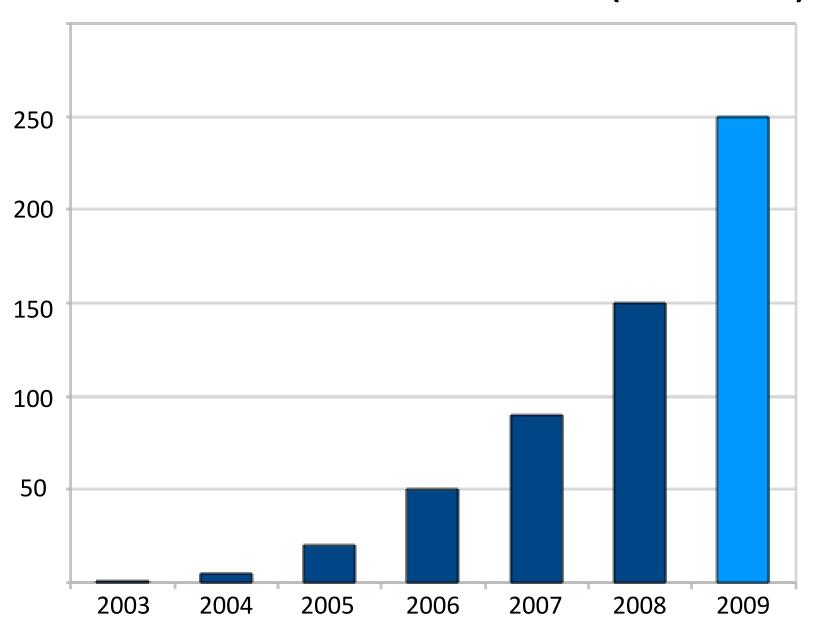
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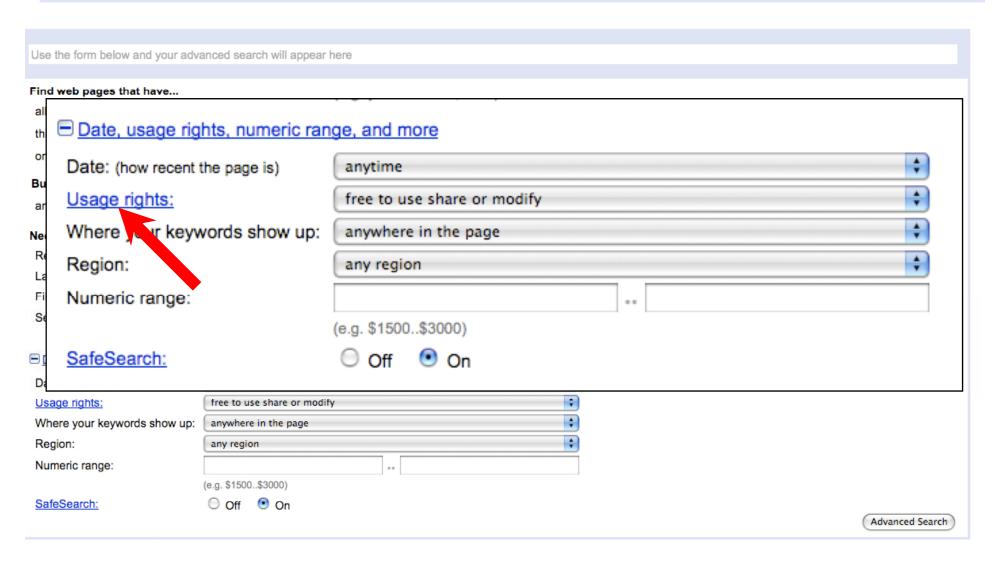




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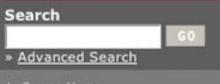
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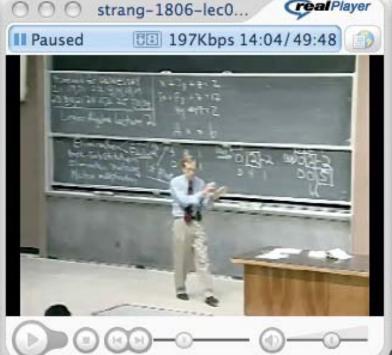
MiT

» MIT OpenCourseWare » Mathematics » Linear Algebra, Spring 2005

Exams

EXAMS	SOLUTIONS
Quiz 1 (PDF)	(PDF)
Quiz 2 (<u>PDF</u>)	(PDF)
Quiz 3 (<u>PDF</u>)	(PDF)
Final Exam (PDF)	(PDF) 000

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Introduces the basic concepts, logic, and issues involved in statistical reasoning. Topics include exploratory data analysis, research methods, probability, and statistical inference. Two versions of the course; eight StatTutor (cognitive tutor) labs.





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Causal & Statistical Reasoning

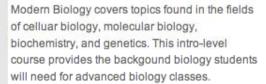
Causal claims permeate everyday life and are constantly the subject of studies reported in the newspaper. This course examines the nature of causal claims and the statistical sorts of evidence used to support them.





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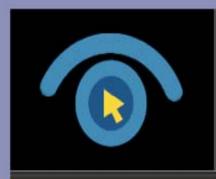


Economics

The Introductory Economics course is a collection of online experiments and related online workbooks which can be used by individual learners or to supplement an instructor lead course.

---- LOOK inside

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Open Learning at BYU

Free public access to select courses and exemplary student work

Welcome!

Participating Departments

Welcome!

Welcome to the pilot Open Learning project at the David O. McKay School of Education at Brigham Young University. The pilot includes free and open access to the materials used by participating MSE faculty to teach their courses. Samples of exemplary student work are also provided.

Message from Dean Young

"While none of us know exactly how learning will be facilitated in the future, we do know that BYU can bless the lives of millions of our brothers and sisters. As an educator, I can think of nothing more rewarding or humbling than to be blessed to live in an age when our Heavenly Father has given us the tools to bring the uplifting and edifying BYU experience to all of our Father in Heaven's children. The David O. McKay School of Education is committed to taking the principles of Open Learning forward." - David O. McKay School of Education Dean Richard Young

What is the pilot Open Learning project?

The pilot Open Learning project does not award university credit and does not provide you with access to MSE faculty. The pilot Open Learning project provides

you with free and open access to materials like lecture notes, syllabi, and assignments. Your use of these



David O. McKay School of Education Dean Richard Young

Type and Wait to Search

Participating Departments

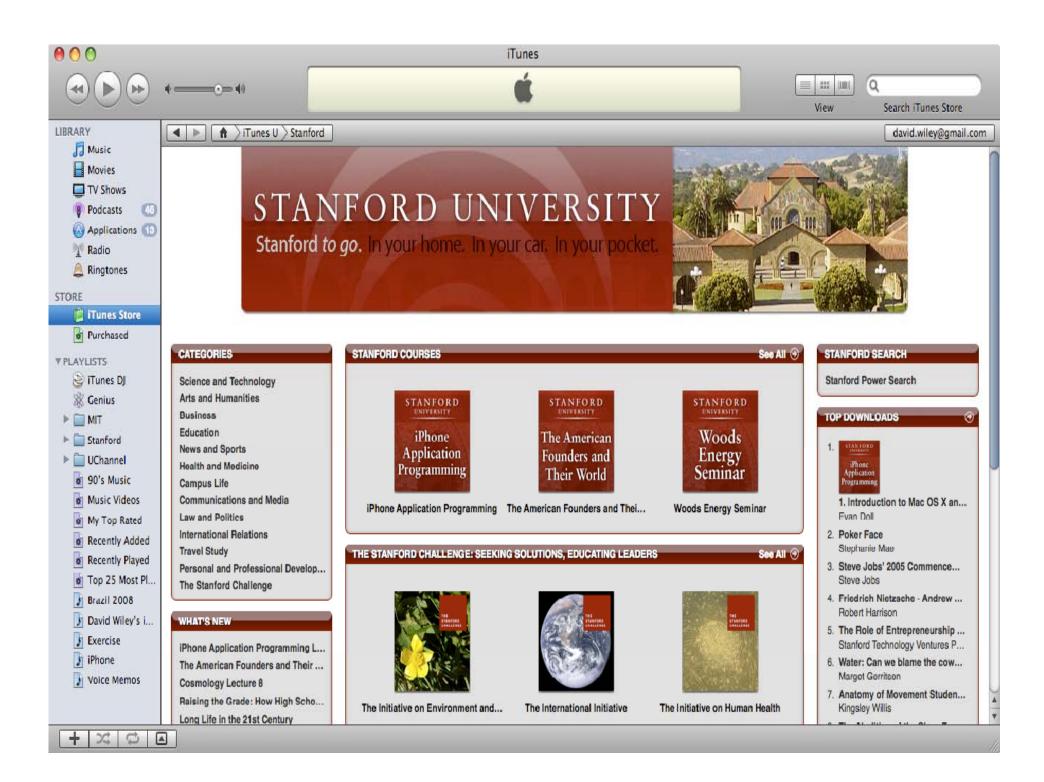
Instructional Psychology & Technology

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CONSORTIUM MEMBERS



Institutions and organizations currently participating in OpenCourseWare Consortium activities are listed below:

Afghanistan (member profiles)

Kabul Polytechnic University

Australia (member profiles)

University of Southern Queensland

Austria (member profiles)

Klagenfurt University

Brazil (member profiles)

- ESAGS Escola Superior de Administração e Gestão
- FundaĀšĀEo Getulio Vargas FGV Online
- Uniso- Universidade de Sorocaba
- Universidade Federal de Juiz de Fora
- Universidade Federal Rural de Pernambuco

Canada (member profiles)

- Athabasca University
- Capitano University

Chile (member profiles)

- Pontificia Universidad Catolica de Chile
- Universidad de Chile

Consortium Membership

Institutions participating in the Consortium....

- · commit to publish at least 10 courses under the institution's name in an opencourseware format.
- · commit resources as available in support of Consortium goals.

Organizations that do not publish their own materials, but whose activities further Consortium goals, also participate in Consortium activities.

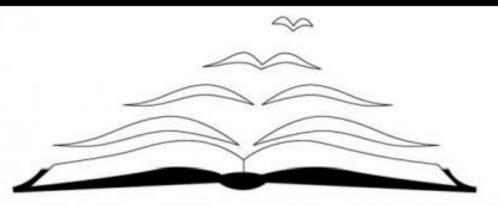
Consortium members feature the following button on their web sites.



An OpenCourseWare site....

- . is a free and open digital publication of high quality educational materials, organized as courses.
- · is available for use and adaptation under an open license.
- does not typically provide certification or access to instructors.

Click here to learn more about becoming a member institution.



Community College Consortium for Open Educational Resources

Shared Knowledge

When educators pool their expertise to create a culture of shared knowledge, everyone benefits. Use of open textbooks can lower educational costs for students. Become involved with the open educational resources (OER) movement so that doors to higher education stay open to all.



Adopt Open Textbooks

The Community College Consortium for Open Educational Resources (CCCOER) is a joint effort by the OER Center for California, Foothill-De Anza Community College District, the League for Innovation in the Community College and many other community colleges and university partners to develop and use open educational resources (OER) and especially open textbooks in community college courses. We now have over 150 CCCOER members. For more details, see the It Takes a Consortium to Support Open Textbooks article in the January/February 2009 issue of Educause Review magazine.

Hewlett Awards Open Textbook Grant

Information



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What do you think of Governor Schwarzenegger's initiative to put digital textbooks into the hands of California's students this fall?

- O Fantastic, foward-thinking
- It's a good idea but it's not without its challenges and I have some reservations.
- O Seems unrealistic to me.

vote



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Featured Chapter



Biophysics (medical imaging) by David Slykhuis

This chapter covers the application of physics principles in medical diagnostic equipment.

» View the FlexBook

Featured Author



Bruce Davidson

Bruce Davidson has an M.S. in Physical Science Education

from Old Dominion University. He has retired after teaching high school physics and biology and is currently working parttime for Newport News Public Schools in Newport News,



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HIGHLIGHTS



Curriki's Blog

Curriki's blog is now available. We'll feature posts about open-source education trends, tips for conquering the digital divide, and, of course, share content and the latest news about Curriki. Check it out and leave us a comment! Learn More



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IT'S ABOUT LEARNING

The Open High School of Utah is an online charter high school that leverages next-generation learning technology and strategic one-on-one tutoring to provide students with significantly better learning experiences.

LEARN MORE

Learn more about our innovative teaching model, our world-class open curriculum, and find answers to frequently asked questions, or attend an Openhouse.

APPLY TO ENROLL

Once you decide the Open High School of Utah is right for you, applying to enroll for the school year is easy with our online enrollment system.

MEET OUR TEAM

Meet the incredible people involved with the Open High School of Utah, including our board members, director, teachers, staff, parents and students, and don't miss the OHSU Blog.



CALENDAR & ANNOUNCEMENTS Subscribe to Trailblazer Newsletter QUICK LINKS: OHSU Blog Start Class | Tech Ticket ENROLL TODAY!

Registration | Revise Application



Bloom's 2 Sigma Challenge

Bloom, 1984



One-to-One Tutoring

And other methods compared to 30 students in the classroom



Average Tutored Student by 2 SD

In other words, the average student is capable of much more



Tutoring is Expensive

So we teach class instead!

If the research on the 2 sigma problem yields practiced methods (methods that the average teacher or school faculty can learn in a brief period of time and use with little more cost or time than conventional instruction), it would be an educational contribution of the greatest magnitude. (p. 5)

Bloom, 1984



To Tutor Or Not to Tutor?

That is the (false) question



"Strategic Tutoring"

What if we could do one-on-one tutoring just-in-time and just-on-topic?



Obs. 1 - Requires Great Insight

We'd have to know who needs help, when, and what they need help with



Obs. 2 - Data Are the Key

You'd need live, fine-grained data about students, assessment, and curriculum



Obs. 3 – Good Data Are Expensive!

Who gathers and analyzes data like this?



footbal

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Advanced Search

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Web Show options...

Did you mean: football

NFL.com - Official Site of the National Football League 🔯

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American football - Wikipedia, the free encyclopedia 🕏

American football, known in the United States simply as football and often as gridiron or tackle football outside the United States, is a competitive team ...

History - Rules - Players - Basic strategy

en.wikipedia.org/wiki/American_football - Cached - Similar

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Comedy Football 3 min 27 sec - Mar 5, 2007 www.youtube.com



NFL Fantasy Files: The Best Plavers 2 min 36 sec - Sep 18, 2008 www.voutube.com

Mack Brown Texas Football

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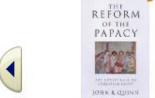
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Today's Recommendations For You

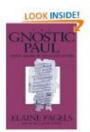
LOOK INSIDE!

Here's a daily sample of items recommended for you. Click here to see all recommendations.



The Reform of the Papacy (Ut Un... (Hardcover) by John R. Quinn **ਸੰਸਕਿੰ**ਸ (10)

Fix this recommendation



The Gnostic Paul (Paperback) by Elaine Pagels **本本本本** (18) \$21.33 Fix this recommendation



Eusebius: The Church History (Paperback) by Paul L. Maier ***** (33) \$10.87 Fix this recommendation

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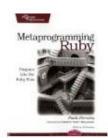
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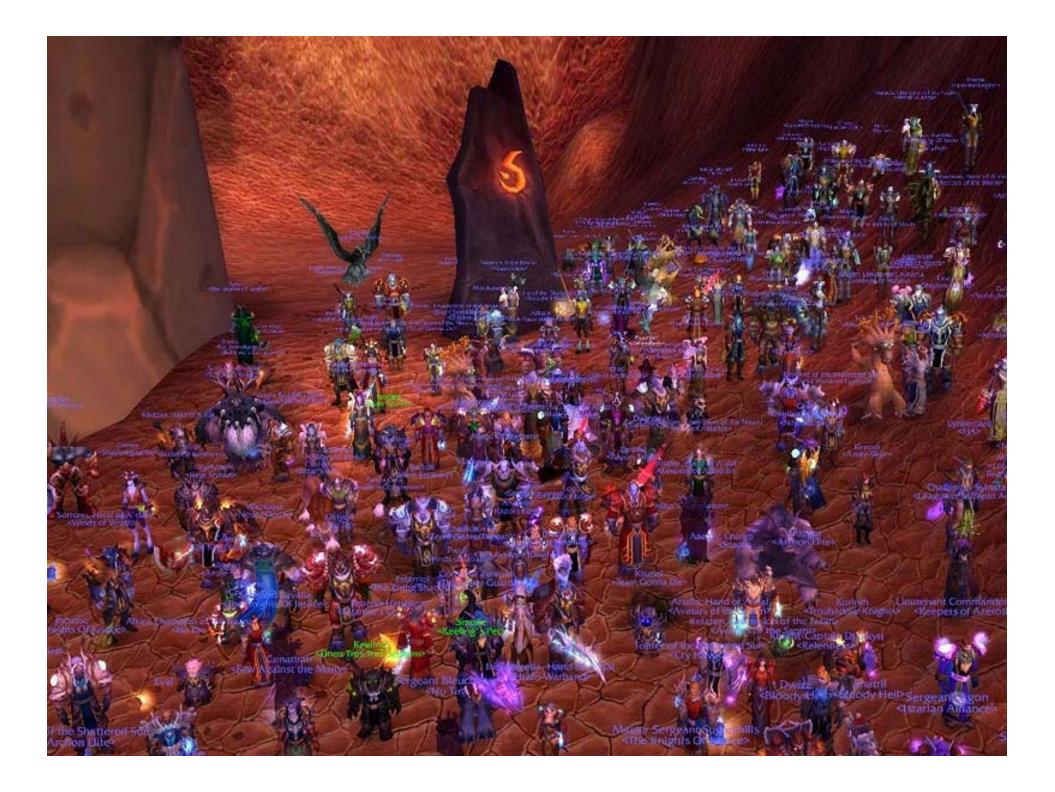
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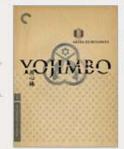
Suggestions (590) Rate Movies Taste Preferences Movies You've Rated (226)

Suggestions in All Genres



Suggestions to Watch Instantly

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Play

Not Interested

Yojimbo

Because you enjoyed: Seven Samurai



*** Not Interested

Auntie Mame

Because you enjoyed: Singin' in the Rain



Tokyo Story

Because you enjoyed: Seven Samurai

*** Not Interested

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See all >



Robin Hood

Because you enjoyed:

The Aristocats The Jungle Book The Rescuers



Harry Potter and the Sorcerer's Stone

Because you enjoyed:

Harry Potter and the Chamber of Secrets Harry Potter and the Goblet of Fire Harry Potter and the Order of the Phoenix



Lord of the Rings: Fellowship of the Ring

Because you enjoyed:

X-Men Pirates of the Caribbean: Black Pearl Spider-Man







Each and Every Interaction

Recorded and stored for analysis to improve quality of service / experience











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Even the Grocer!

Almost every industry uses data more effectively than education



How Can We Get the Data?

One option is to follow Google, Amazon, Netflix, WoW, etc.



Do School *Online*

Where each and every interaction can be captured and stored for analysis



What Kind of Data?

When they logged in, read, and worked How long they logged in, read, and worked Pathway information Item-by-item analytics &c.



OHSU Teaching Model

Online curriculum teaches as much as possible, teachers do proactive "strategic tutoring"



Another Benefit of Data

Engage in continuous improvement of curriculum materials



Can You Improve Curriculum?

Data aren't sufficient – you need permission



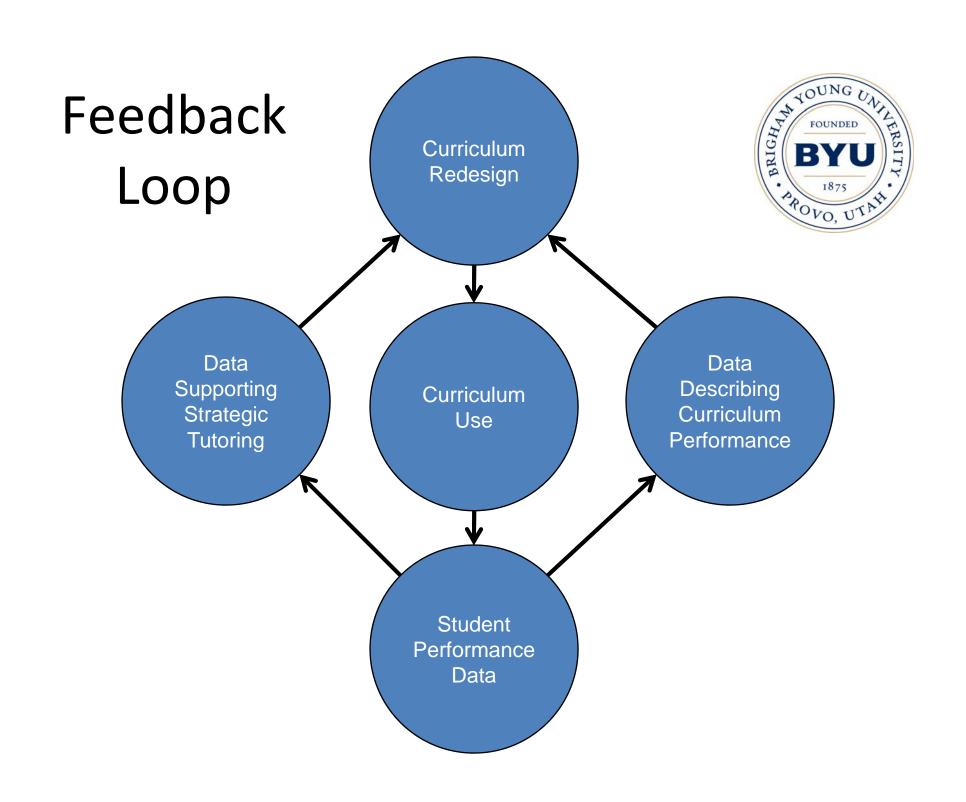
OHSU Charter Requires OER

Founders' way of "burning the ships"



Conjoint Continuous Improvement

Student learning and curriculum effectiveness grow simultaneously



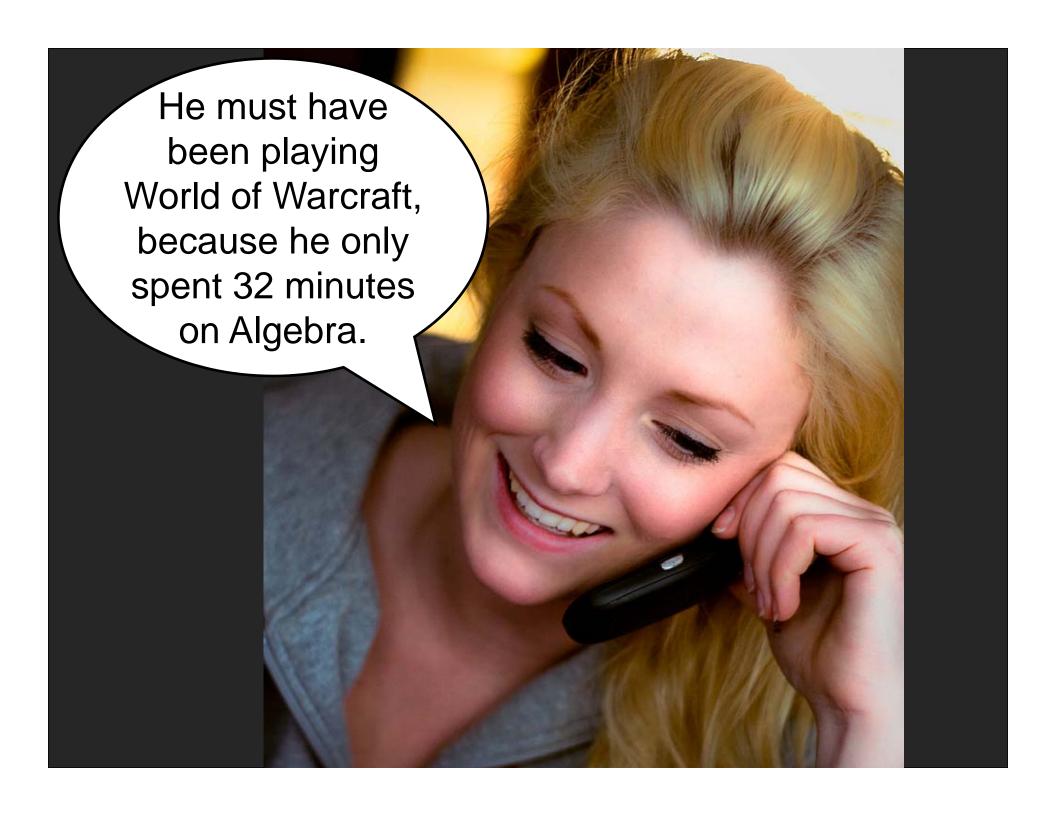


Capturing Out-of-Band Tutoring

Using customer relationship management (CRM) tools





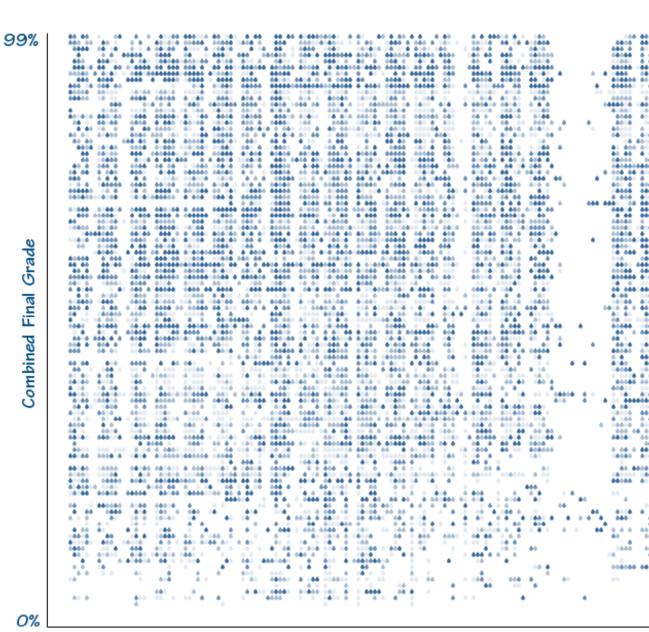






Visualizing Educational Data

Creating new visualization techniques to support teaching and learning





Open Textbook Pilot

Replacing expensive textbooks with OER textbooks from CK12.org



2010-2011

2100 students in Earth Systems, Biology, and Chemistry



\$10 per book

As opposed to \$80+ per book



Textbook as Consumable

Students can highlight, annotate, and keep their textbooks



At Least 50% Cost Savings

We believe levels of learning will be constant or improve slightly



Thank You

david.wiley@byu.edu http://davidwiley.org/