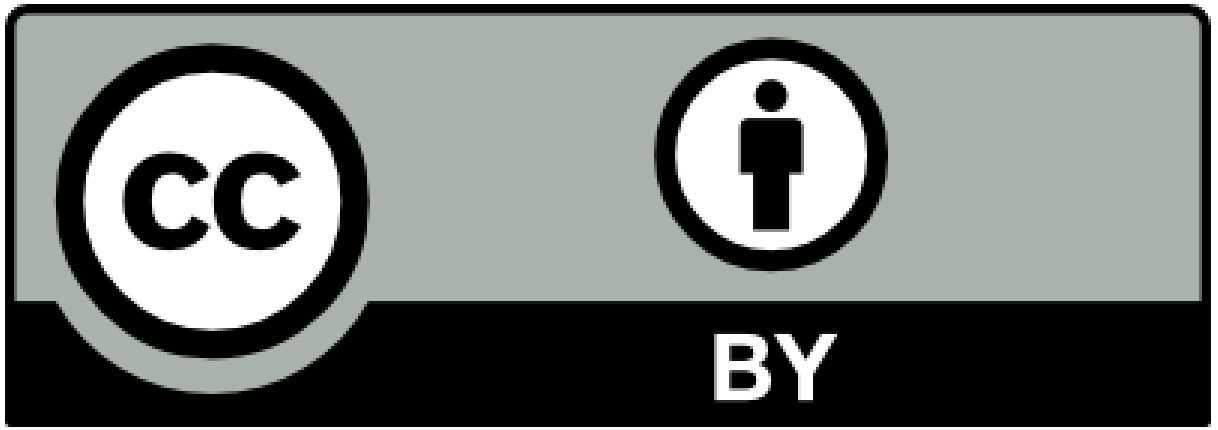
“Affordable” Is Too Low a Bar: The Future of the Textbook

David Wiley, PhD
Lumen Learning / CC / BYU
@opencontent :: #algeorgia



education

education =

education = sharing

sharing

what you know

sharing

feedback

sharing

encouragement

sharing

passion

sharing

yourself

education

~~faculty meetings~~

~~tenure and promotion~~

~~fighting for parking~~

educative acts

ALL

sharing

if

~~sharing~~

~~education~~

rivalrous

nonrivalrous

THE BEST PECAN PUMPKIN PIE

PREP TIME	COOK TIME	TOTAL TIME
1 hour 30 mins	1 hour 10 mins	2 hours 40 mins

The smoothest, silkiest pumpkin pie you will ever experience! This pecan pumpkin pie is velvety smooth and topped with pecans to give the pie an added crunch. The homemade crust, the pumpkin filling, and the toasted pecans - 3 layers for this perfect pumpkin pie. Top with a dollop of whipped cream for extra smiles!

Author: Little Spice Jar
Serves: 1-9inch pie

SAVE PRINT

INGREDIENTS

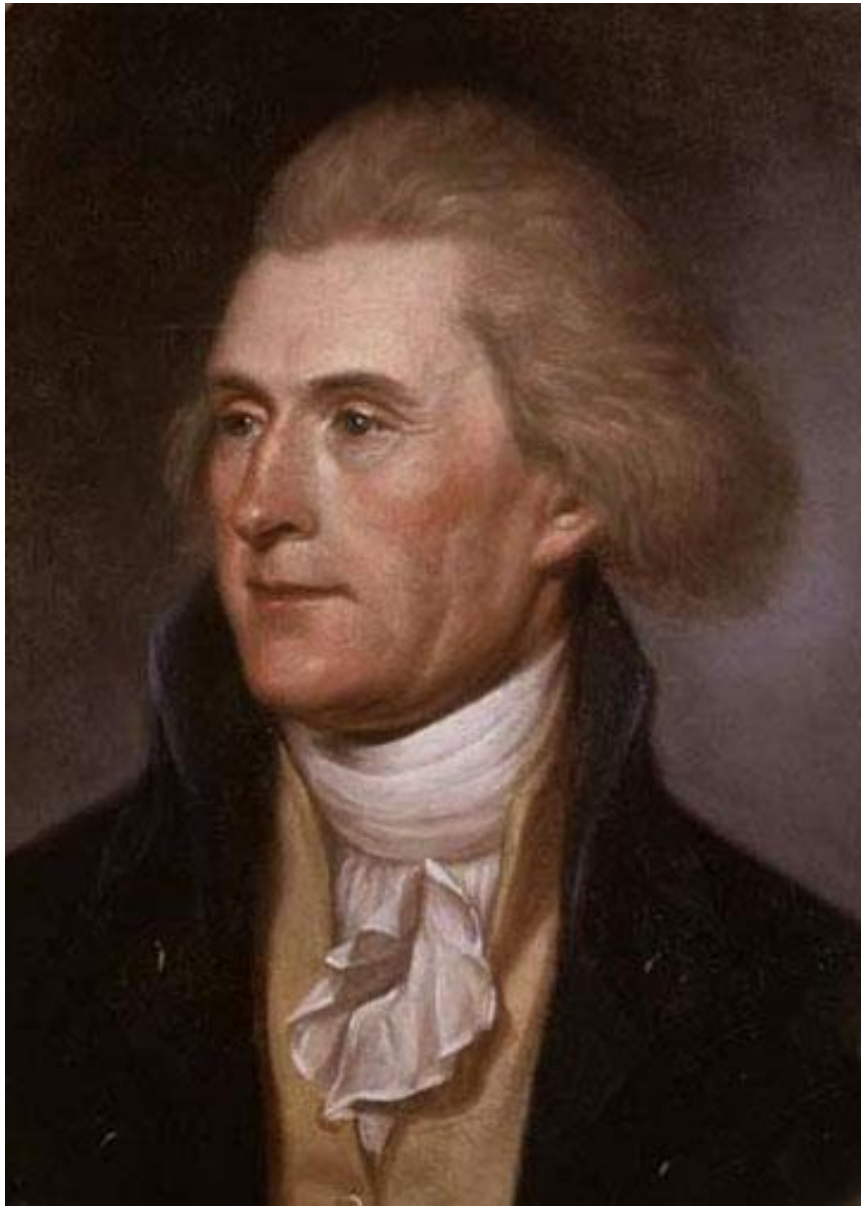
For the crust:

½ cup (8 tablespoons) salted butter
1½ cups all purpose flour
1½ tablespoons granulated sugar
⅓ cup buttermilk, scant

For the pecan pumpkin pie filling:

2 cups (15 oz or 450 grams) pumpkin puree (not pie filling)
2 large eggs + 2 egg yolks
1 cup light brown sugar
2 tablespoons maple syrup
1¼ cups (10 ounces) evaporated milk
2 teaspoons vanilla extract
¼ teaspoon salt
½ teaspoon ground ginger
2 teaspoons cinnamon
¼ teaspoon nutmeg, ground or freshly grated
⅛ teaspoon ground cloves
1½ cups whole pecans

INSTRUCTIONS



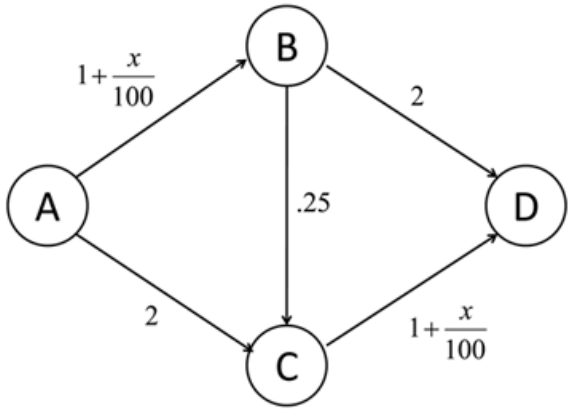
“He who receives ideas from me, receives instruction himself without lessening mine; as he who lights his taper at mine receives light without darkening me.”

Thomas Jefferson

sharing

	Option A	Option B	Option C
Option A	0, 0	**25, 40**	5, 10
Option B	**40, 25**	0, 0	5, 15
Option C	10, 5	15, 5	**10, 10**

A payoff matrix - Nash equilibria in bold



$$r_i(\sigma_{-i}) = \arg\max_{\sigma_i} u_i(\sigma_i, \sigma_{-i})$$

Formal definition [edit]

Let (S, f) be a game with n players, where S_i is the strategy set for player i, $S = S_1 \times S_2 \times \cdots \times S_n$ is the set of strategy profiles and $f = (f_1(x), \ldots, f_n(x))$ is the payoff function for $x \in S$. Let x_i be a strategy profile of player i and x_{-i} be a strategy profile of all players except for player i. When each player $i \in \{1, \ldots, n\}$ chooses strategy x_i resulting in strategy profile $x = (x_1, \ldots, x_n)$ then player i obtains payoff $f_i(x)$. Note that the payoff depends on the strategy profile chosen, i.e., on the strategy chosen by player i as well as the strategies chosen by all the other players. A strategy profile $x^* \in S$ is a Nash equilibrium (NE) if no unilateral deviation in strategy by any single player is profitable for that player, that is

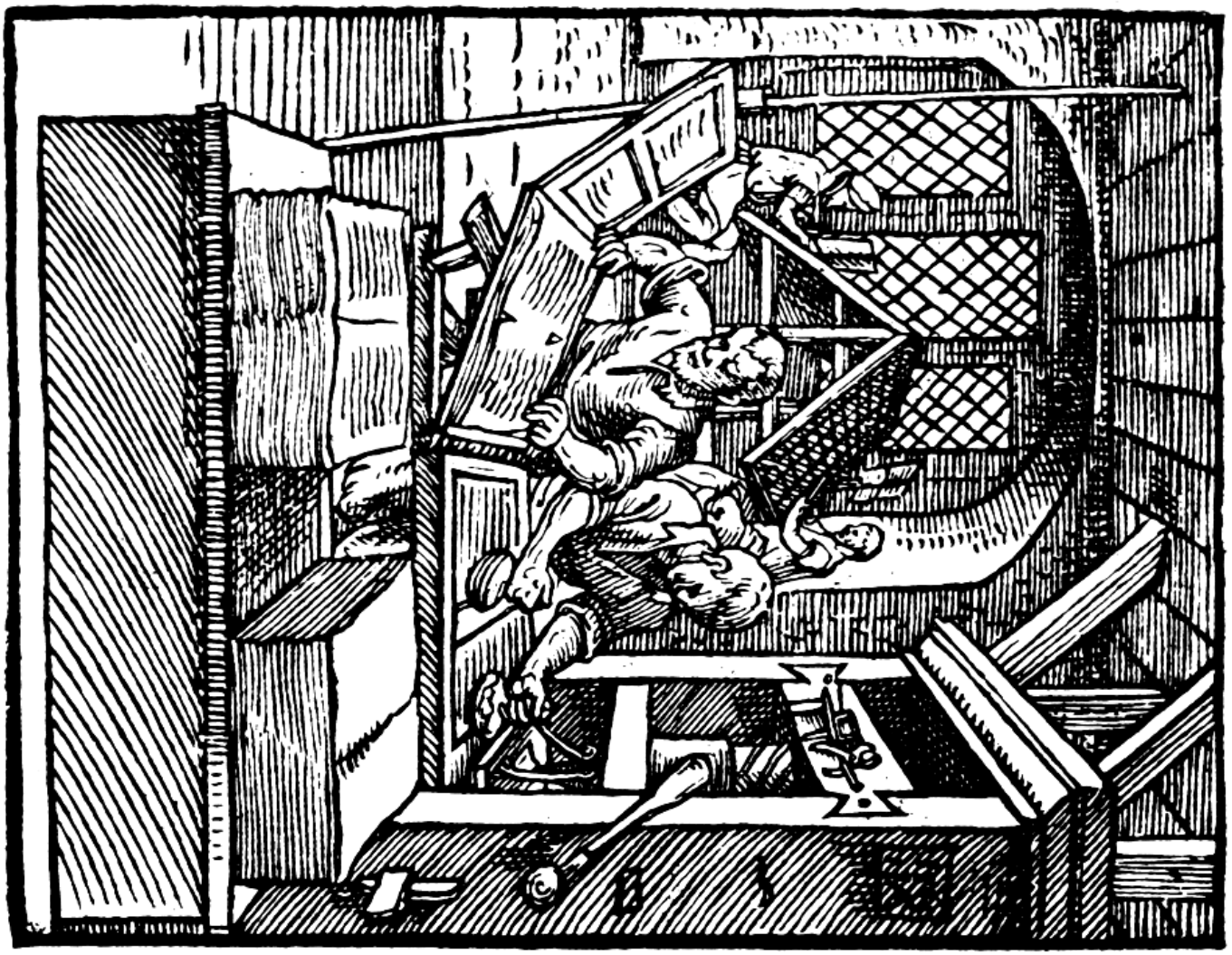
$$\forall i, x_i \in S_i : f_i(x_i^*, x_{-i}^*) \geq f_i(x_i, x_{-i}^*).$$

When the inequality above holds strictly (with > instead of ≥) for all players and all feasible alternative strategies, then the equilibrium is classified as a *strict Nash equilibrium*. If instead, for some player, there is exact equality between x_i^* and some other strategy in the set S, then the equilibrium is classified as a *weak Nash equilibrium*.

sharing

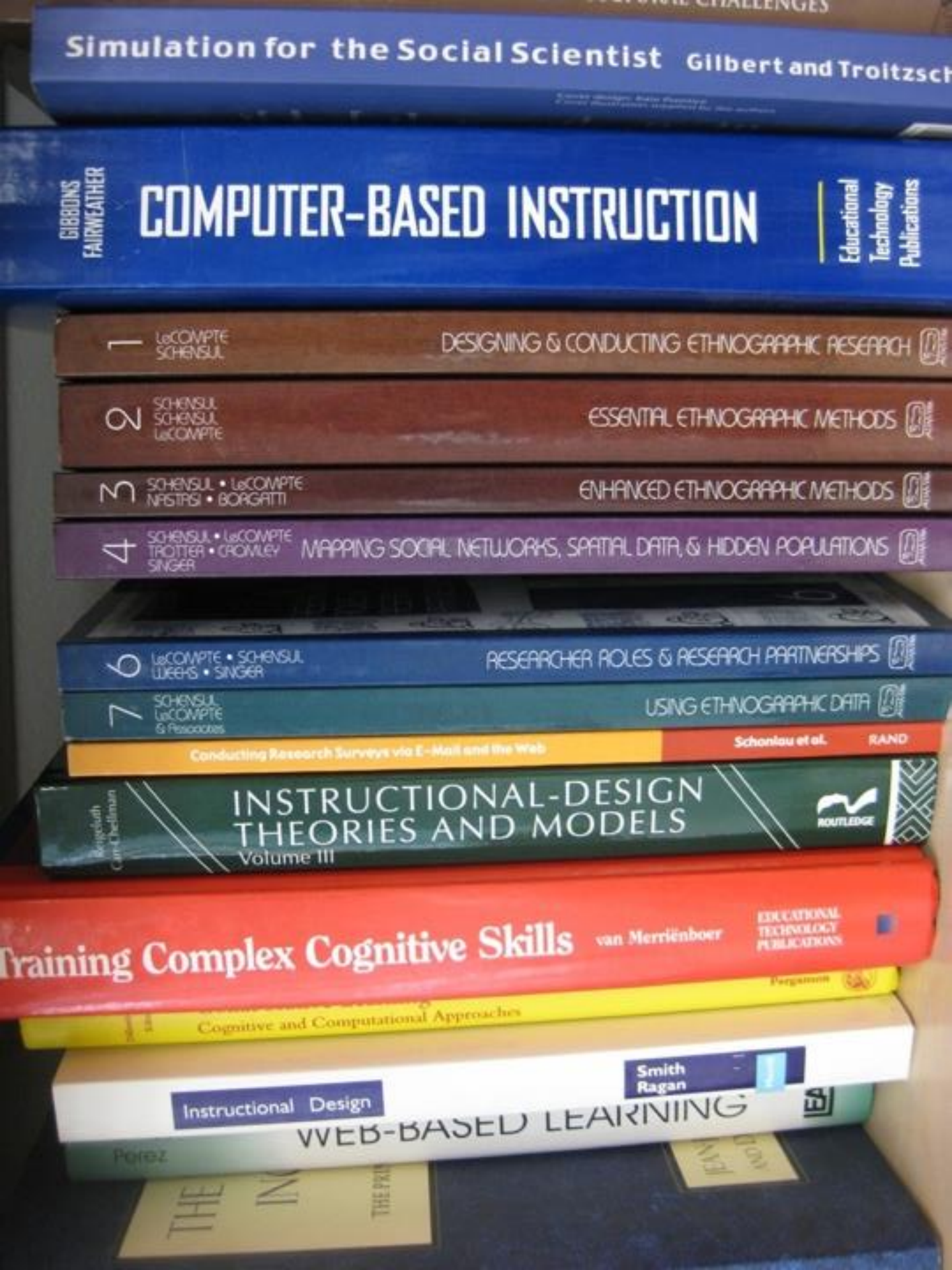
asynchronously?

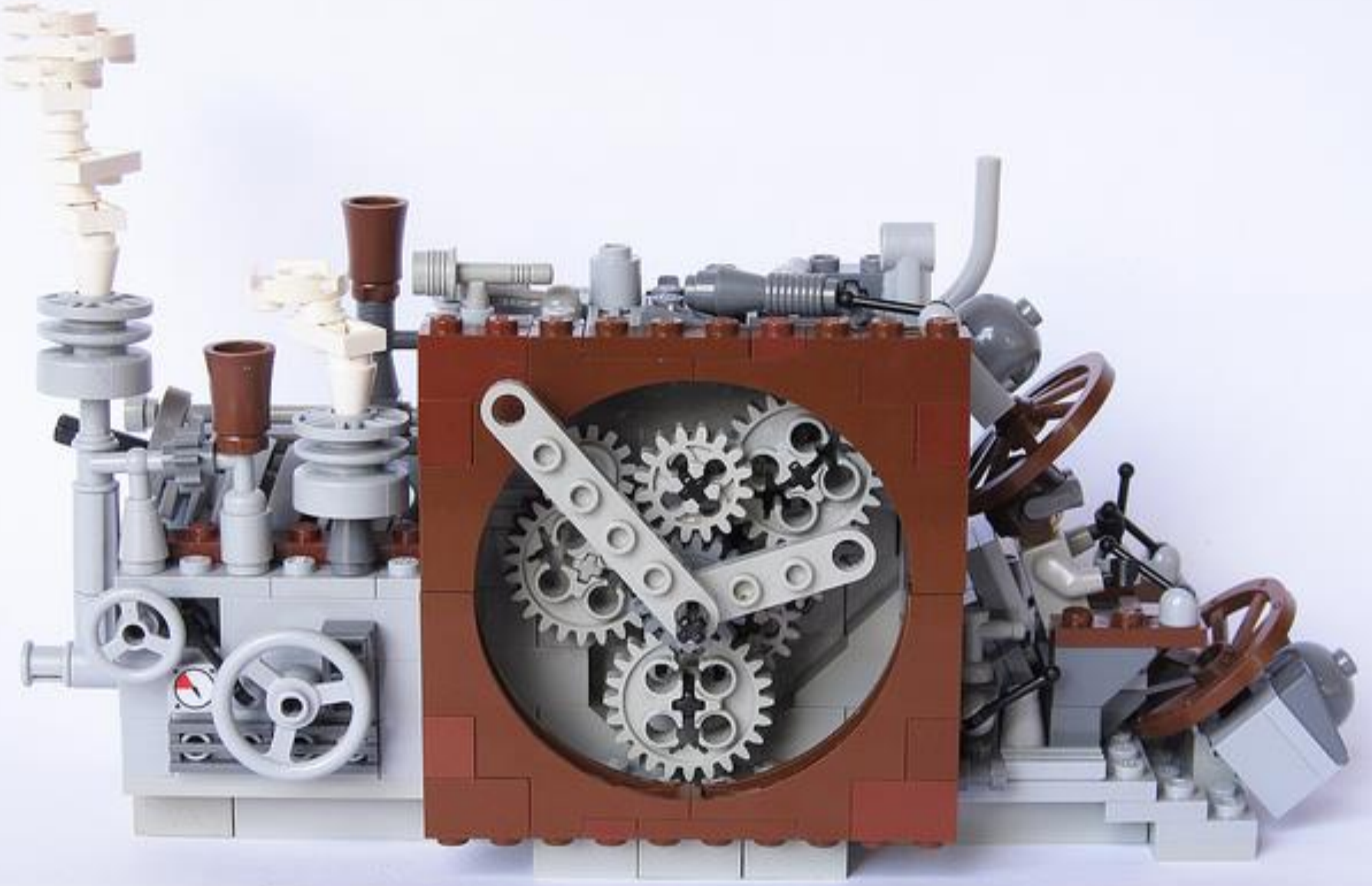
externalize



externalized ideas

converted to rivalrous


Simulation for the Social Scientist
Gilbert and Troitzsch
GIBBONS
FAIRWEATHER
COMPUTER-BASED INSTRUCTION
Educational Technology Publications
1 LeCOMPTE SCHENSUL
DESIGNING & CONDUCTING ETHNOGRAPHIC RESEARCH
2 SCHENSUL SCHENSUL LeCOMPTE
ESSENTIAL ETHNOGRAPHIC METHODS
3 SCHENSUL • LeCOMPTE NASTASI • BORGATTI
ENHANCED ETHNOGRAPHIC METHODS
4 SCHENSUL • LeCOMPTE TROTTER • CROMLEY SINGER
MAPPING SOCIAL NETWORKS, SPATIAL DATA, & HIDDEN POPULATIONS
6 LeCOMPTE • SCHENSUL WEEKS • SINGER
RESEARCHER ROLES & RESEARCH PARTNERSHIPS
7 SCHENSUL LeCOMPTE & Associates
USING ETHNOGRAPHIC DATA
Conducting Research Surveys via E-Mail and the Web
Schonlau et al.
RAND
INSTRUCTIONAL-DESIGN THEORIES AND MODELS
Volume III
ROUTLEDGE
Training Complex Cognitive Skills
van Merriënboer
EDUCATIONAL TECHNOLOGY PUBLICATIONS
Cognitive and Computational Approaches
Instructional Design
Smith Ragan
WEB-BASED LEARNING
Perez



externalized = nonrivalrous?

“internet”

PHIPSON On 23rd July 2011, to
(née Young) and Peter, a daughter,
Elethea Sarah Bay.
ROWE On 2nd August 2011, to Laura
(née Venn) and Chris, a beautiful
daughter, Sophie Elizabeth.
POTTER
Do we even need cover images? Have these original
Penguin covers ever been bettered for elegance and
simplicity? There are generations of book collectors
who think not
The Penguin Ink series,
six limited-edition classic
novels with covers by
leading tattoo artists, is
out now
Coolest Hotspots,

Get ready: 2016 starts now

Presidential race is off and running

Attention Hillary Clinton, Jeb Bush, Rand Paul, Chris Christie, Marco Rubio, Ted Cruz and everyone "seriously considering" a run for president: You can stop pretending now. **FULL STORY**

- GOP takes control of Congress
- Full results | Senate | House | Govs
- GOP's big night in 90 seconds

AMERICA'S CHOICE 2014

- CNN ELECTION RESULTS CENTER
- Angry voters | EXIT POLLS
- NEW Christie: I'll decide on '16 in '15

MIDTERM TAKEAWAYS

The sobering message for Obama

WATCH NOW

WATCH LIVE TV CNN go

Wolf

1pm ET / 10am PT

CNN's lead political anchor Wolf Blitzer looks at politics, breaking news and international news

Shows and Schedules

Full Schedules: CNN TV · HLN TV

MARKETS

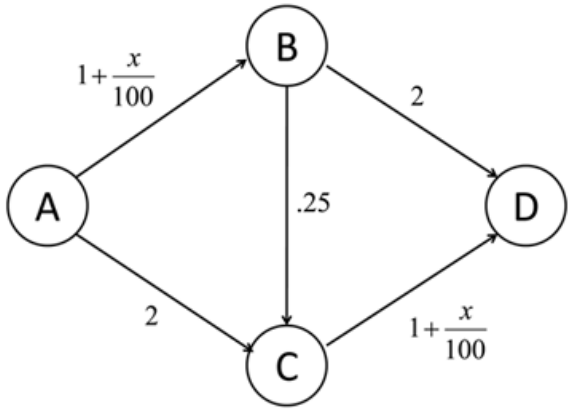
externalized ideas

externalized ideas + online =

nonrivalrous

	Option A	Option B	Option C
Option A	0, 0	**25, 40**	5, 10
Option B	**40, 25**	0, 0	5, 15
Option C	10, 5	15, 5	**10, 10**

A payoff matrix - Nash equilibria in bold



$$r_i(\sigma_{-i}) = \arg\max_{\sigma_i} u_i(\sigma_i, \sigma_{-i})$$

Formal definition [edit]

Let (S, f) be a game with n players, where S_i is the strategy set for player i, $S = S_1 \times S_2 \times \cdots \times S_n$ is the set of strategy profiles and $f = (f_1(x), \ldots, f_n(x))$ is the payoff function for $x \in S$. Let x_i be a strategy profile of player i and x_{-i} be a strategy profile of all players except for player i. When each player $i \in \{1, \ldots, n\}$ chooses strategy x_i resulting in strategy profile $x = (x_1, \ldots, x_n)$ then player i obtains payoff $f_i(x)$. Note that the payoff depends on the strategy profile chosen, i.e., on the strategy chosen by player i as well as the strategies chosen by all the other players. A strategy profile $x^* \in S$ is a Nash equilibrium (NE) if no unilateral deviation in strategy by any single player is profitable for that player, that is

$$\forall i, x_i \in S_i : f_i(x_i^*, x_{-i}^*) \geq f_i(x_i, x_{-i}^*).$$

When the inequality above holds strictly (with > instead of ≥) for all players and all feasible alternative strategies, then the equilibrium is classified as a *strict Nash equilibrium*. If instead, for some player, there is exact equality between x_i^* and some other strategy in the set S, then the equilibrium is classified as a *weak Nash equilibrium*.

unprecedented capacity

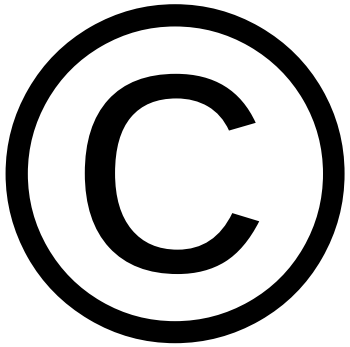
sharing

education = sharing

unprecedented capacity

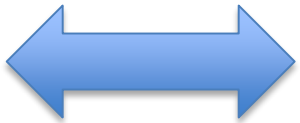
educate

except we can’t



Uses Regulated by Copyright	Handwriting	Printing Press	Internet
Make a copy of a work	**$1000s per copy**	**$1s per copy**	**$0.0001s per copy**
Make changes to a work	$1000s per copy	$1s per copy	$0.0001s per copy
Redistribute a work	**$1000s per copy**	**$1s per copy**	**$0.0001s per copy**
Public performance of a work	10s of people	100Ks of people	100Ms of people

Tech
Enables



Law
Forbids


J-512

in the air?

open

Open Educational Resources

Open Educational Resources?

Any kind of teaching materials – textbooks, syllabi, lesson plans, videos, readings, exams

Open Educational Resources?

(1) Free and unfettered access, and

(2) Free copyright permissions to engage in the 5R activities

open ≠ free

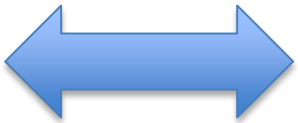
open = free **+ permissions**

The 5Rs

Retain	• Make and own copies
Reuse	• Use in a wide range of ways
Revise	• Adapt, modify, and improve
Remix	• Combine two or more
Redistribute	• Share with others


creative
commons

Tech Enables



OER Permits

traditionally © materials


J-512

openly licensed materials

not about cost

enabling innovation

improving student learning

not just copy and distribute

revise and remix

adapting

improving

local control

revisit

rivalrous / nonrivalrous

“anti-rivalrous”

open your resources

still have your resources

improved resources

	when you…	then you…
Rivalrous	give away…	have less.
Nonrivalrous	give away…	have the same.
“Anti-Rivalrous”	give away…	have more.


lumen

over 880M OER

miniscule adoption

we help get open adopted

we help get open adopted effectively

adoption support

faculty training

instructional design

ongoing support

hosting

LMS integration

continuous improvement

research support

everything we make is open

Red Hat for OER

no “catch”

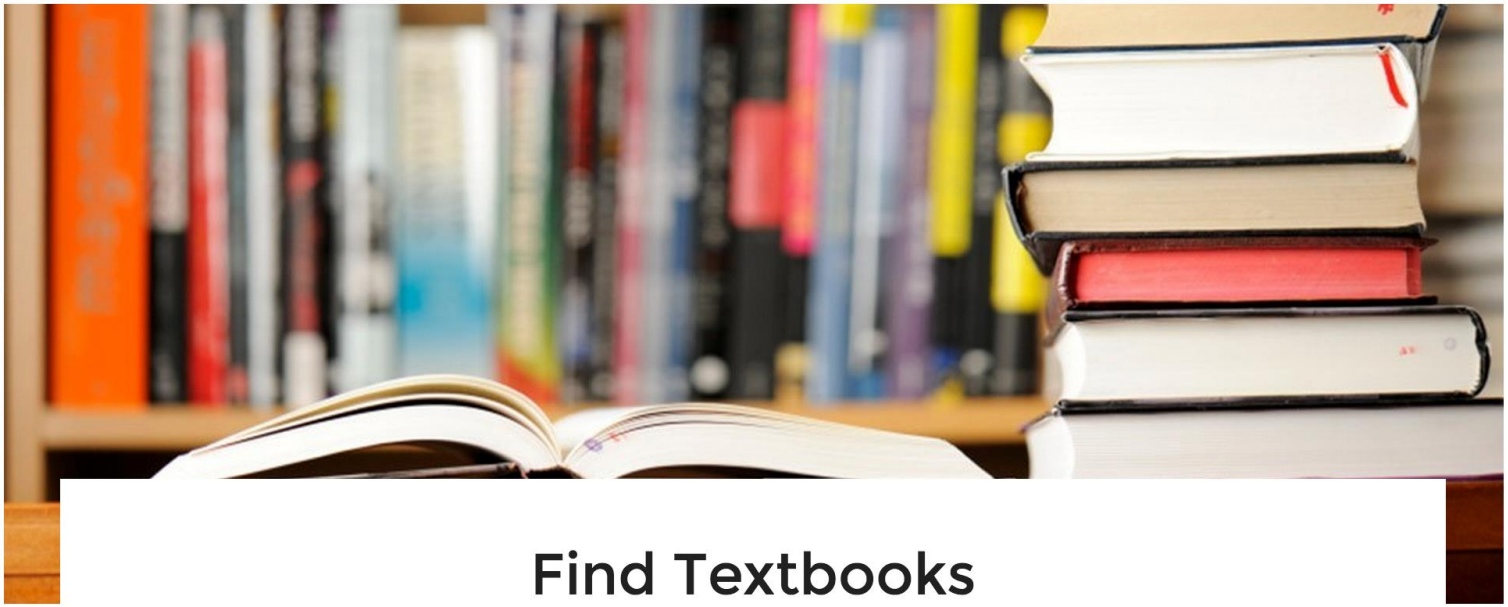
small – UGA Biology

Affordable Learning Georgia

NEWSLETTER | CONTACT US

Georgia's Virtual Library GALILEO
An Initiative of the University System of Georgia

FIND TEXTBOOKS | LIBRARY RESOURCES | OPEN RESOURCES/MERLOT | BOOKSTORES | HELP | ABOUT



Find Textbooks

Featured Textbook

The University of Georgia

University of Georgia Concepts of Biology (BIOL 1103E - Concepts in Biology - 13SU-55796)

University of Georgia Concepts of Biology

Publishers: OpenStax College

large – TCC Z Degree

Home TCC.EDU

TCC today

News & Insights from Tidewater Community College

TIDEWATER COMMUNITY COLLEGE
From here, go anywhere.™

TCC's Z-Degree receives more national attention

Posted on August 28, 2014 / Under September 2014

Tidewater Community College's textbook-free degree in business administration – the Z-Degree – is described as "life-changing" in a recent article in the Hechinger Report, a national publication that covers education. The same article appears in the online version of Time magazine.

TCC student Sandra Kerley describes how the program benefits her: "It helps us pay the electricity bill; it helps us put food on the table for the kids; it helps us buy other supplies for class."

The Z-Degree has also been featured nationally on the Christian Broadcasting Network

To search type and hit enter

Latest News

Secretary Jones to speak at TCC Fall Commencement

TCC accepted into Registered Apprenticeship College Consortium

TCC partnership with Liberty Source benefits veterans, military spouses

Future cops, corrections officers, investigators learn at TCC

From TCC to Virginia Tech to electrical engineer

open keeps us honest


U GET WHAT
U PAY FOR
memegenerator.net


Project Kaleidoscope

Participants

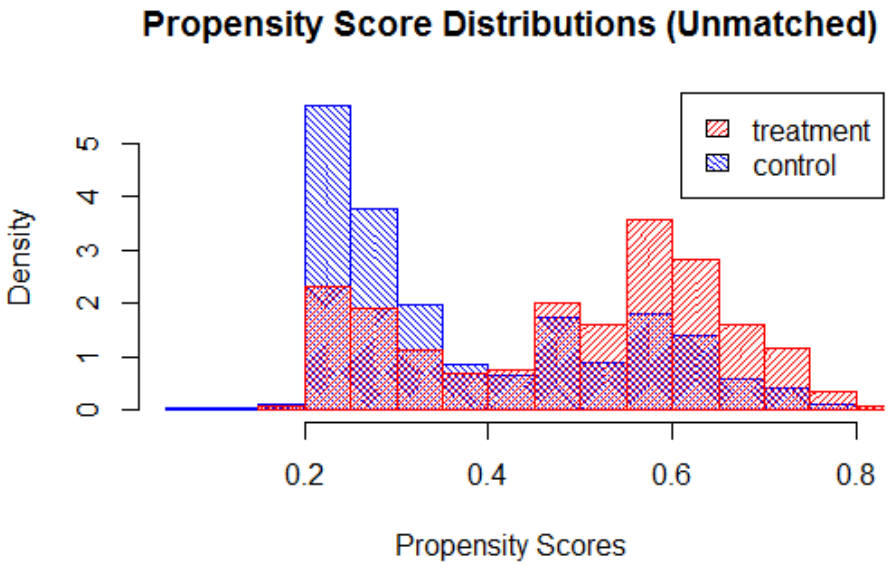
- 4,909 treatment
- 11,818 control
- 50 undergraduate courses
- 130 teachers
- 8 institutions

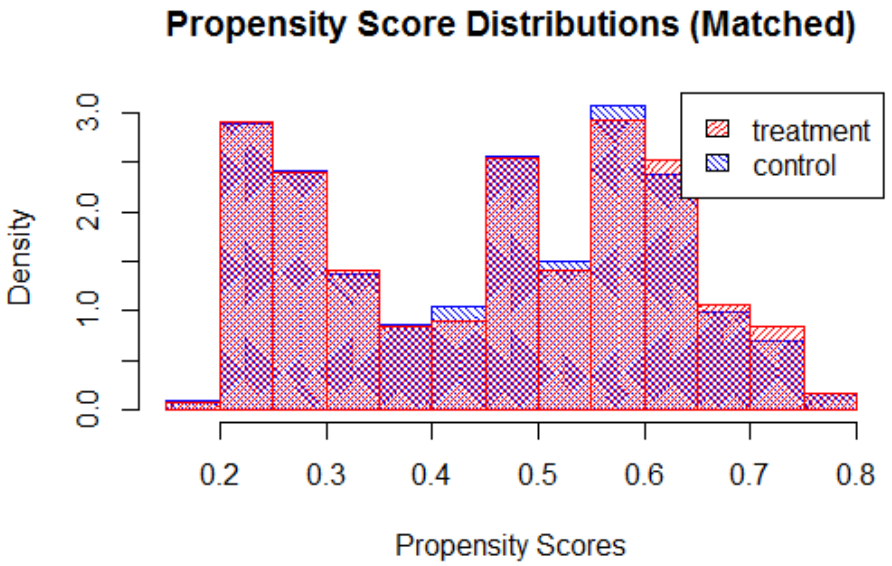
Method

Quasi-experimental design with:

- Propensity Score Matching
- Dependent variables: Completion; C or Better; Credits Enrolled This Term; Next Term
- Independent variable: Textbook condition
- Covariates: age, gender, and race

Propensity Score Matching





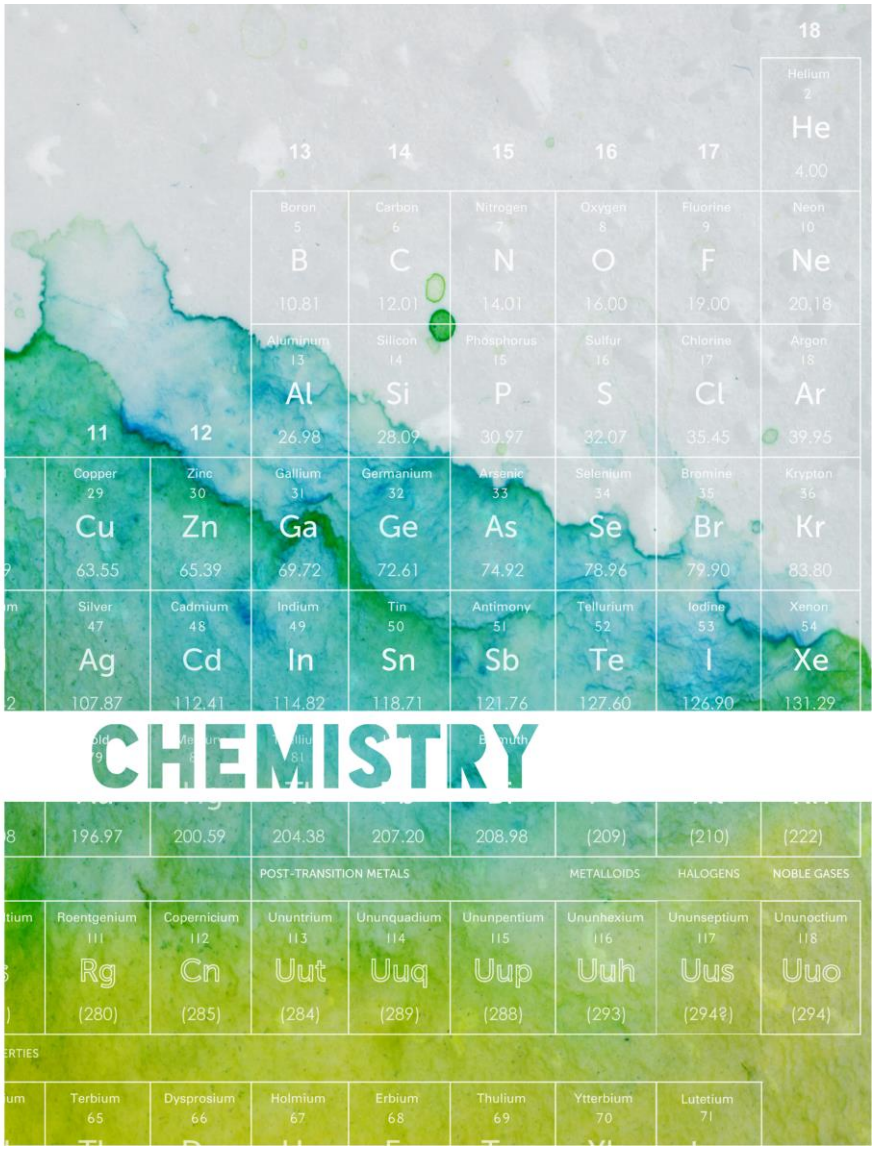
Increased group balance by 98%

Results

Increased:

- Completion (X^2_{res} = +2.9, -2.9)
- C or Better (X^2_{res} = -2.5, +2.7)
- Credits this term $t(8101) = 27.81$, $p < .01$
- Credits next term $F(1, 6440) = 154.08$, $p < .01$

Submitted to *Computers in Education*



PHYSICS

Utah Open Textbooks

Participants

- Nebo School District
- 4183 students
- 43 teachers
- Earth Science, Biology, Chemistry

Method

Quasi-experimental design with:

- Treatment and Control Group
- Propensity Score Matching
- Dependent variable: Score on 2012 statewide standardized science exam
- Independent variable: Textbook condition
- 15 Covariates: including age, gender, special education, English language proficiency, 2011 test data, 2011 GPA, and race

Outcome: State Standardized Test

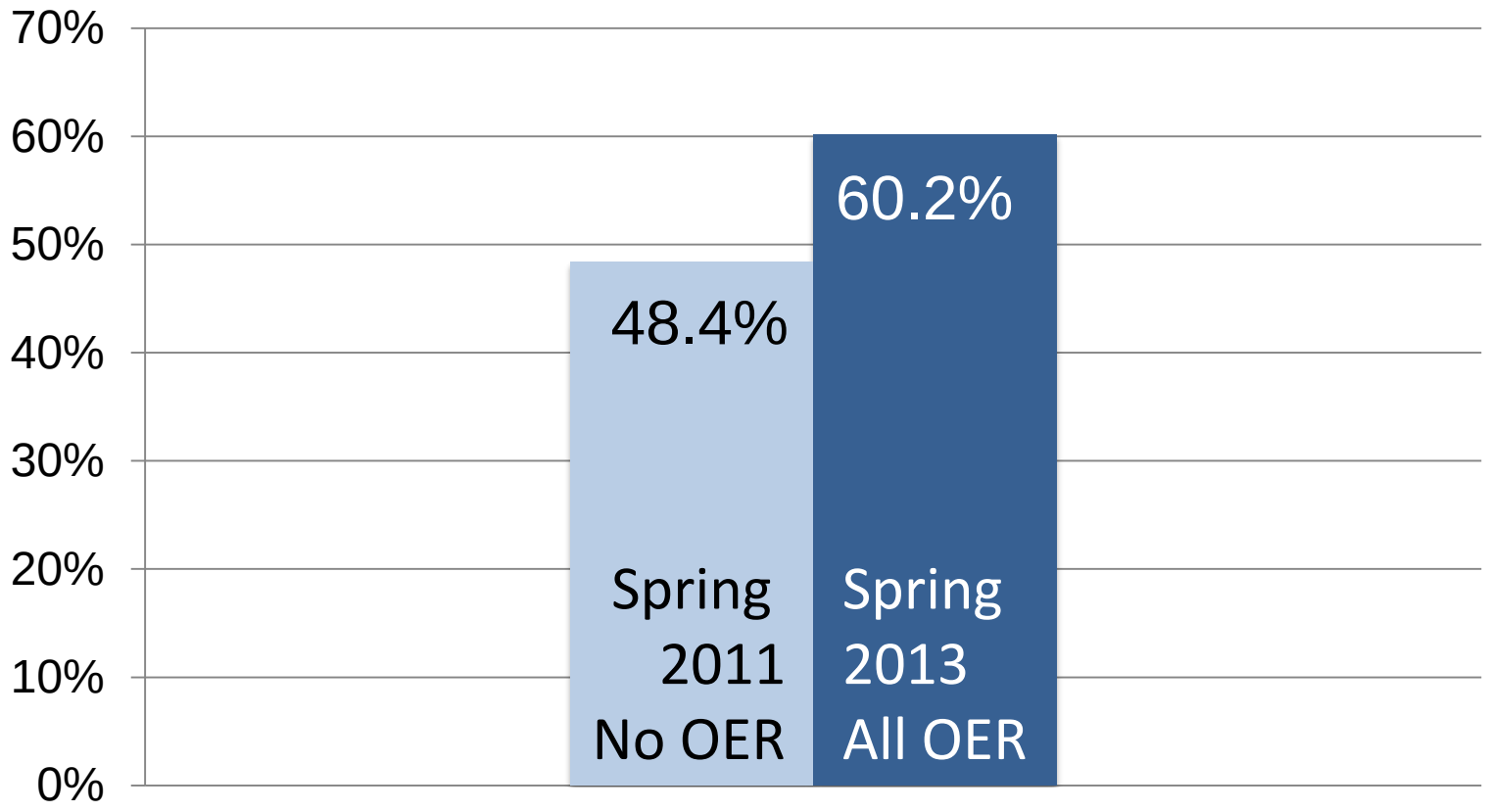
- IRT scaled scores increased with open textbooks, $p < .001$
- Multiple r squared = .635

- Published in *Ed Researcher*

Developmental Math

Published in *Educause Review*

% Completing with C or Better



From textbook and MyMathLab ($170)

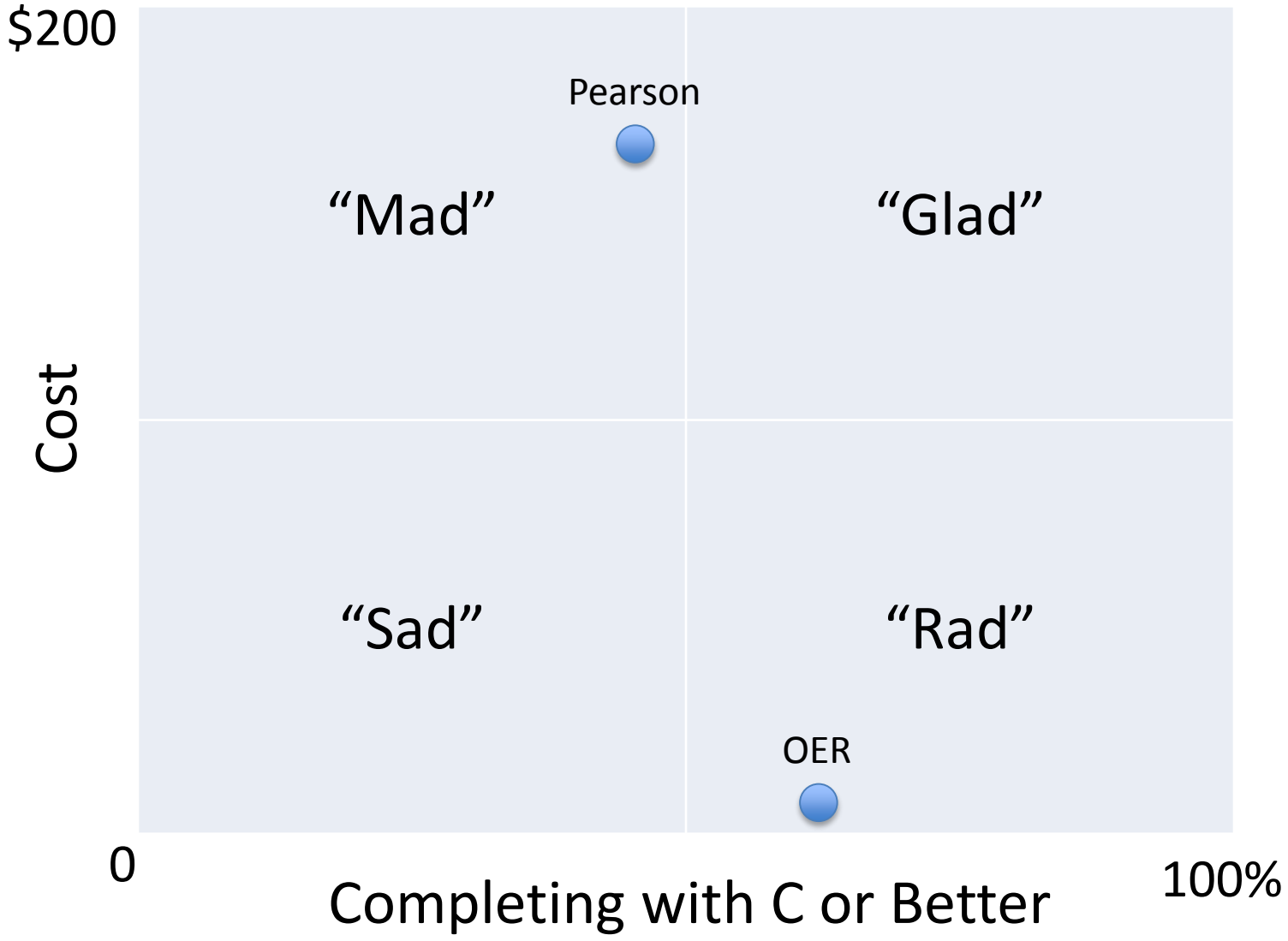
To OER and MyOpenMath ($5)

Learning Outcomes per Dollar

Learning Outcomes per Dollar

Learning Outcomes per Dollar

Learning Outcomes per Dollar



public funding

gross negligence in procurement

$3500%, worse quality?

Associates of Business

"Z Degree"

Graduate without ever buying a textbook

World's first "all-OER" degree

~30% cheaper for students

When a student drops, it..

Slows down their graduation

Costs the institution tuition dollars (refunds)

INTRO Model

Table 3. Aggregate Drop Rates for Fall 2012 and Spring 2013 Terms

Section Type	Enrollments	Drops	Drop Rate
Non-Z	23232	830	3.57%
Z	753	21	2.79%

(182 * .89 * $164.35 * 3) in-state + (182 * .11 * $358.95 * 3) out-of-state = **$304,269** annual INTRO

Submitted to *EPAA*

open pedagogy

what’s possible?

~~disposable assignments~~

PROJECT MANAGEMENT FOR INSTRUCTIONAL DESIGNERS

ABOUT PM4ID

Project Management for Instructional Designers (PM4ID) is – as the name suggests – a book about project management tailored specifically for instructional designers. This book is a revise / remix of a pre-existing, openly licensed project management textbook which was donated to the commons by a benefactor that desires to be attributed as Anonymous.

PM4ID includes many new features and improvements to the original book, including:

- Alignment of book chapters with the PMBOK, which supports readers in preparing for the Project Management Professional certification,
- A series of video cases of project managers working in the instructional design area, integrated into every chapter,
- Multiple versions of the book, including HTML, PDF, ePub, Kindle, and a text-to-speech mp3 audio version of the book,
- New examples written specifically for readers coming from the instructional design perspective,
- and more.

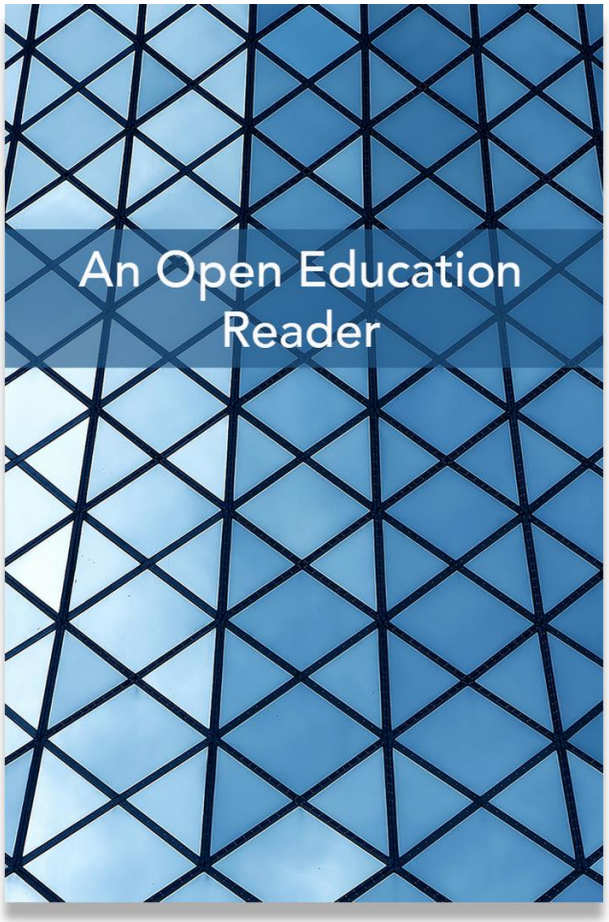
TABLE OF CONTENTS

AN OPEN EDUCATION READER

David Wiley, Editor

A collection of readings on open education with commentary. Created for IPT 515R Introduction to Open Education, a graduate course at Brigham Young University. *An Open Education Reader* is published under the Creative Commons Attribution 4.0 License.

READ



The Reusability Paradox

A CONFERENCE ROOM FULL OF PEOPLE

R: Good to see everyone again! S called ahead to say he was running a little late.

O: Good to be here again!

D: I don't think I've ever been part of a group where everyone showed up on time.

V: Well, this *is* only our second meeting. (General laughter)

R: I'm just glad you all came back. I was wondering if you got anything out of that first meeting.

V: Yes, of course! We wouldn't have taken time away from work to come back if we didn't expect this meeting to be extremely valuable.

C and D: (In unison) Riiiiiight.

D: (Trying to look angelic) I would *never* take time away from work if it weren't for something 'extremely valuable'... like World of Warcraft. (More laughter)

R: Ok, ok. I want to bring us back to the topic of learning objects tonight, and specifically, to the question of the size of learning objects. Also known as the granuilarity question.

O: I thought we agreed last time that our definition of learning object was going to depend on the specific situation we find ourselves in?

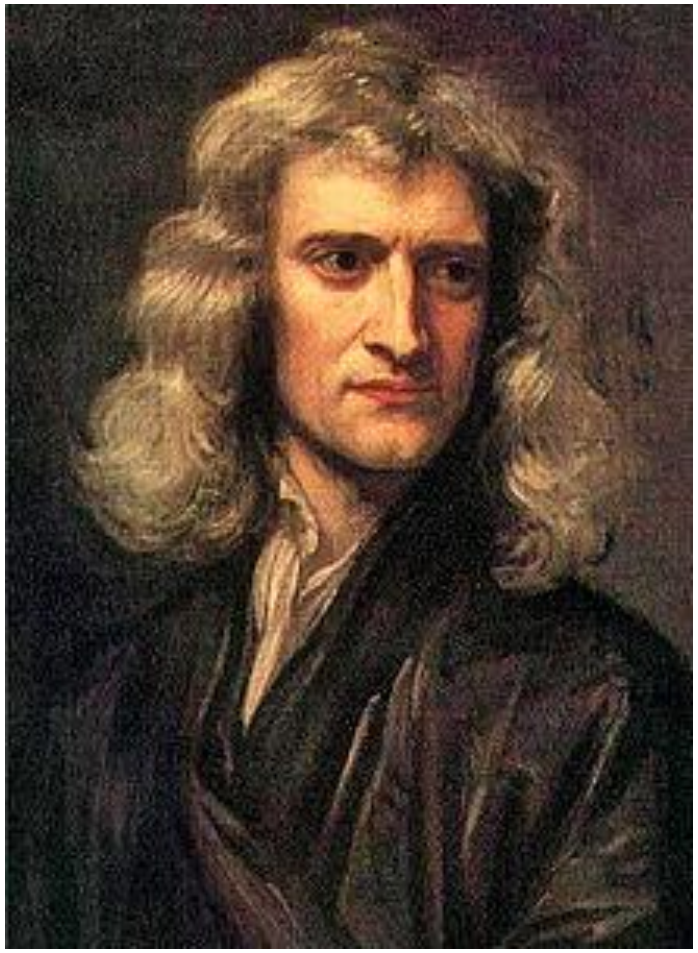
C: Are we going to find out tonight how big a learning object should be? My manager keeps asking me that question.

R: Well, I think we're going to talk through some of the key issues that help people make that decision...

V: But we're not going to make the decision for you.

R: I want to suggest a topic to get our conversation going tonight: the fundamental tension between using and reusing.

C: What on earth is that supposed to mean?



“If I have seen further it is by standing on the shoulders of giants.”

Isaac Newton

Traditional Copyright

=

Spiked Shoulder Pads

Open Licenses

=

Bringing Students a Ladder

in **conclusion**

affordable > expensive

free > affordable

open > free

open = free **+ 5R permissions**

open

permissionless innovation

open

increased learning outcomes / $

open

anti-rivalrous serendipity

don’t settle for affordable

when you could have open