

# **OER:** Why We Must Change Our Commitments into Actions

David Wiley, PhD  
@opencontent



efficiency

metric



cost

# metric

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# cost

- Engagement
- Final grade
- Drop rate
- Withdraw rate
- Completion rate
- Enrollment intensity
- Persistence
- Time to graduation

metric

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**cost**

- Tuition costs
- Textbook costs
- Study time
- Instructor prep time
- Grading time
- Instructor salary
- Infrastructure

Improve efficiency?

Inefficiencies are local

metric



cost



↑ metric ↑



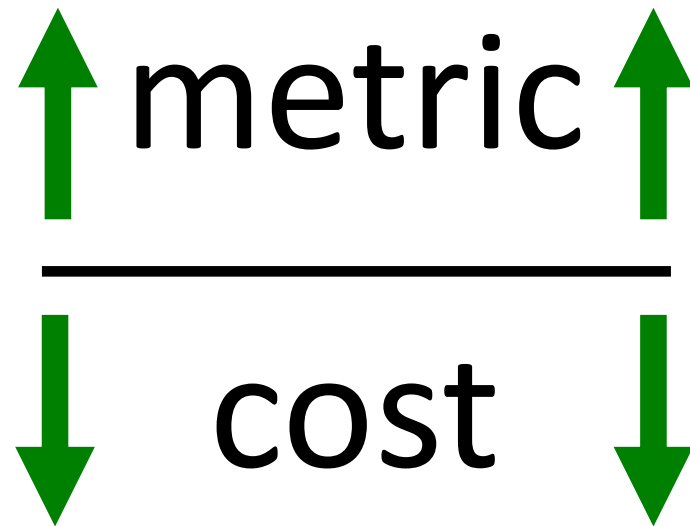
cost

metric

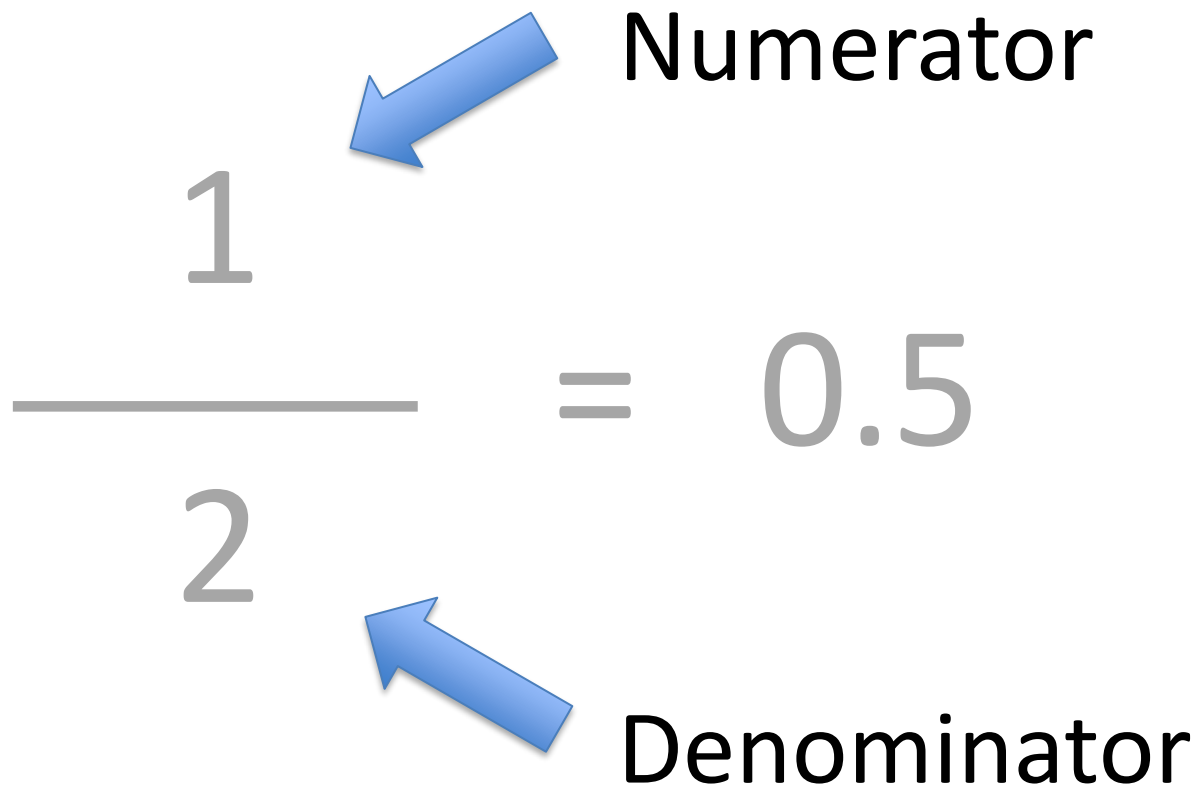


cost





$$\frac{1}{2} = 0.5$$




Numerator

$$\frac{1}{2} = 0.5$$

Denominator


The diagram illustrates the components of the fraction  $\frac{1}{2}$ . The number 1 is positioned above a horizontal line, and the number 2 is positioned below it. A blue arrow points from the word "Numerator" to the number 1, and another blue arrow points from the word "Denominator" to the number 2. To the right of the fraction line is an equals sign followed by the decimal 0.5.

$$\frac{1}{2} = 0.5$$

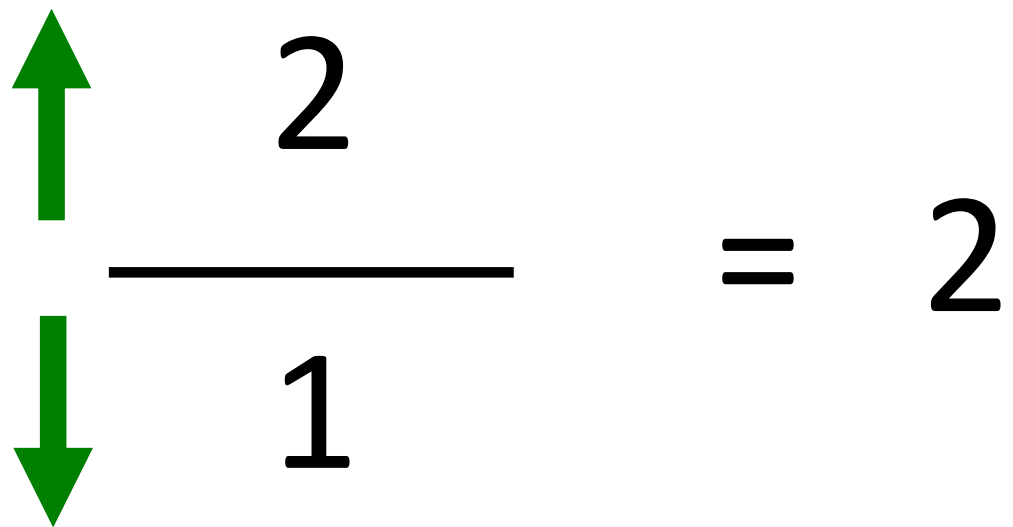

$$\frac{2}{2} = 1$$

$$\frac{1}{2} = 0.5$$




$$\frac{1}{1} = 1$$

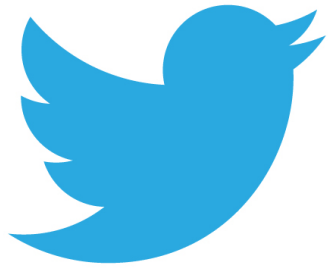
$$\frac{1}{2} = 0.5$$


$$\begin{array}{c} \uparrow \\ 2 \\ \hline 1 \\ \downarrow \end{array} = 2$$



Open

~~open ≈ free~~



the internet is already free to  
read / watch / listen



**open** = a free grant of  
permissions

# The 5Rs

Retain

- Make and own a copy

Reuse

- Use in a wide range of ways

Revise

- Adapt, modify, and improve

Remix

- Combine two or more

Redistribute

- Share with others



retain + redistribute =  
download and share for free

revise + remix =  
edit, improve, collaborate

reuse = formal and informal  
settings



# The 5Rs

Retain

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Reuse

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Revise

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Remix

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Redistribute

- Share with others

Open

A free grant of the 5R permissions

# Open Educational Resources (OER)



↑ metric ↑



cost

# A Multi-Institutional Study of the Impact of **Open** Textbook Adoption on the Learning Outcomes of Post-secondary Students

Fischer, Hilton, Robinson, and Wiley

*Journal of Computing in Higher Education (2015)*



# Research Context

- 4,909 treatment
- 11,818 control
- 50 different undergraduate courses
- 130 teachers
- 10 US institutions



# Methodology

Quasi-experimental design with:

- Propensity score matched groups
- Dependent variables: Completion; C or Better; Credits Enrolled This Term; Credits Enrolled Next Term
- Independent variable: Textbook condition
- 3 covariates: age, gender, and race

**Table 2** Course by course outcomes

Course	Control N	Treatment N	Completion $X^2$ analysis	C- or better $X^2$ analysis	Course grade independent samples $t$ test
Biology 111	134	99	T > C	NS	NS
Business 110	228	227	T > C	C > T	C > T
English 135	93	46	NS	T > C	T > C
Math 60	722	49	NS	NS	NS
Math 80	143	20	NS	NS	NS
Math 100	358	47	NS	NS	NS
Math 150	76	30	NS	NS	NS
Math 219	335	27	NS	T > C	NS
Math 1010	4531	84	NS	T > C	NS
Math 1210	247	93	NS	T > C	T > C
Math 920	345	42	NS	T > C	T > C
Psych 100	822	26	NS	NS	T > C
Psych 101	814	109	NS	NS	NS
Psych 103a	52	97	NS	NS	NS
Psych 103b	364	91	NS	NS	NS

# Credits Taken

Semester	OER Users	TPM Users	Result
Fall	<b>13.29</b>	<b>11.14</b>	$t(8101) = 27.81$ $p < .01$
Winter	10.71	9.16	$F(1, 6440) = 154.08$ , $p < .01$

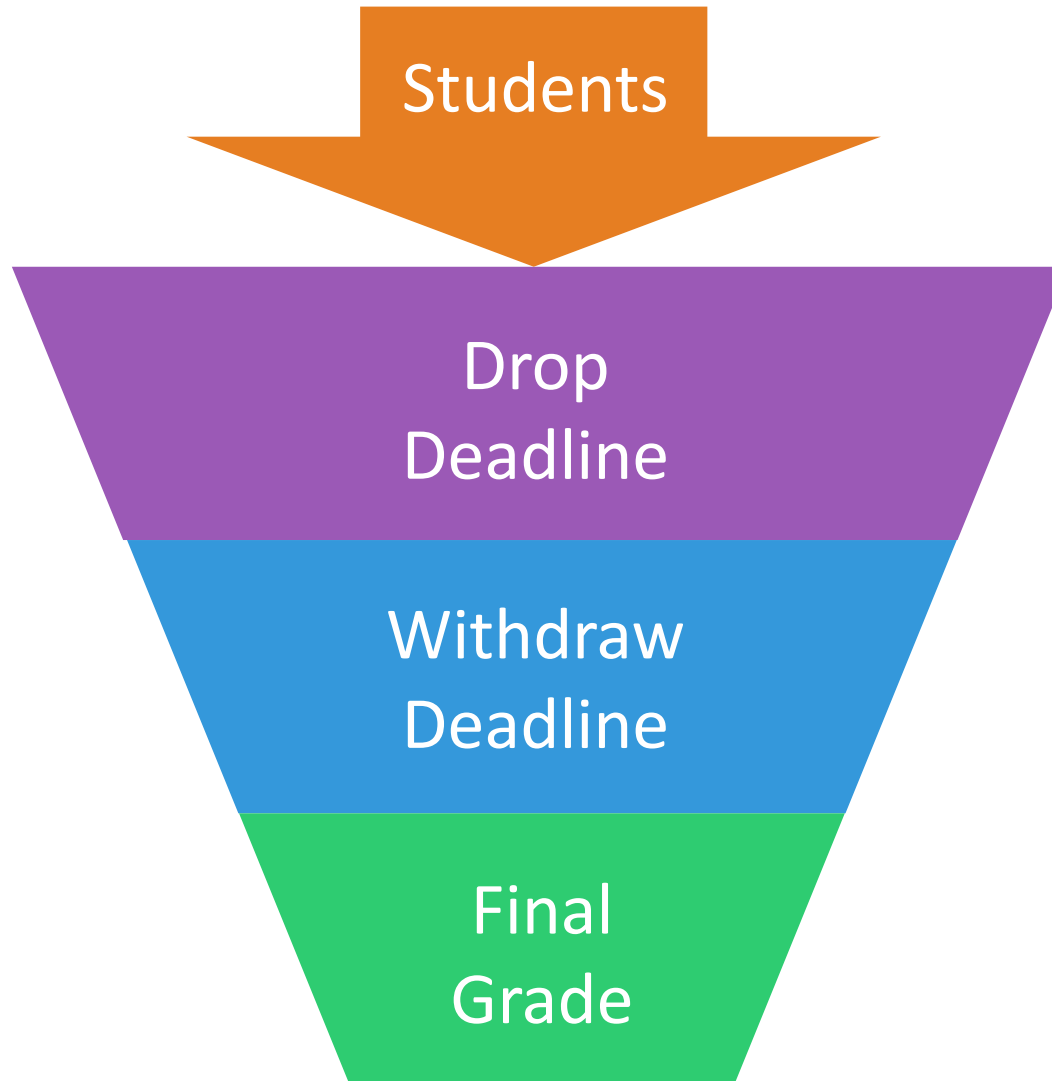
# Improving Course Throughput Rates and **Open Educational Resources**: Results from the Z Degree Program at Tidewater Community College

Hilton, Fischer, Wiley, and Williams

*International Review  
of Research in Open and  
Distance Learning (in press)*

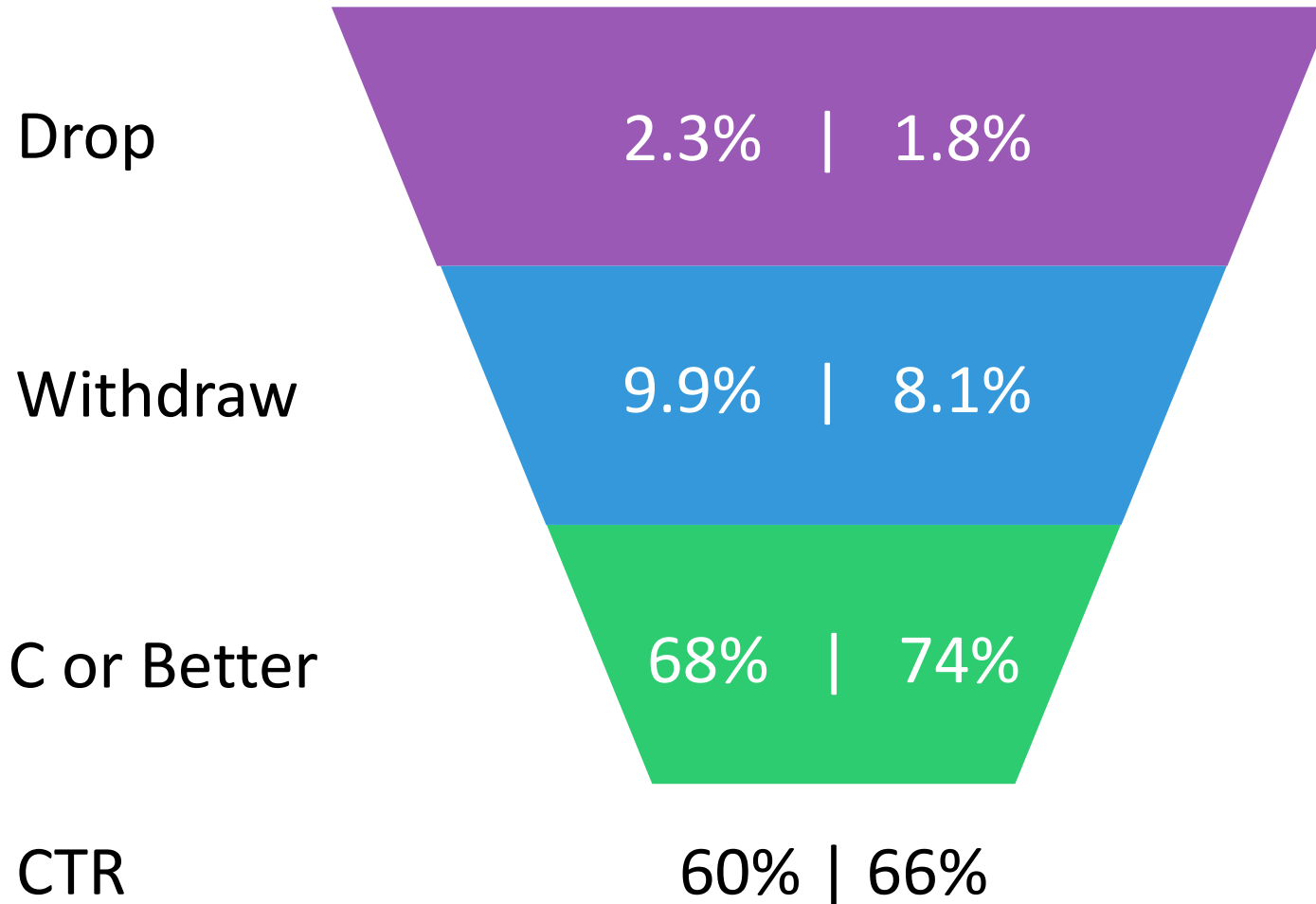


# Course Throughput Rate



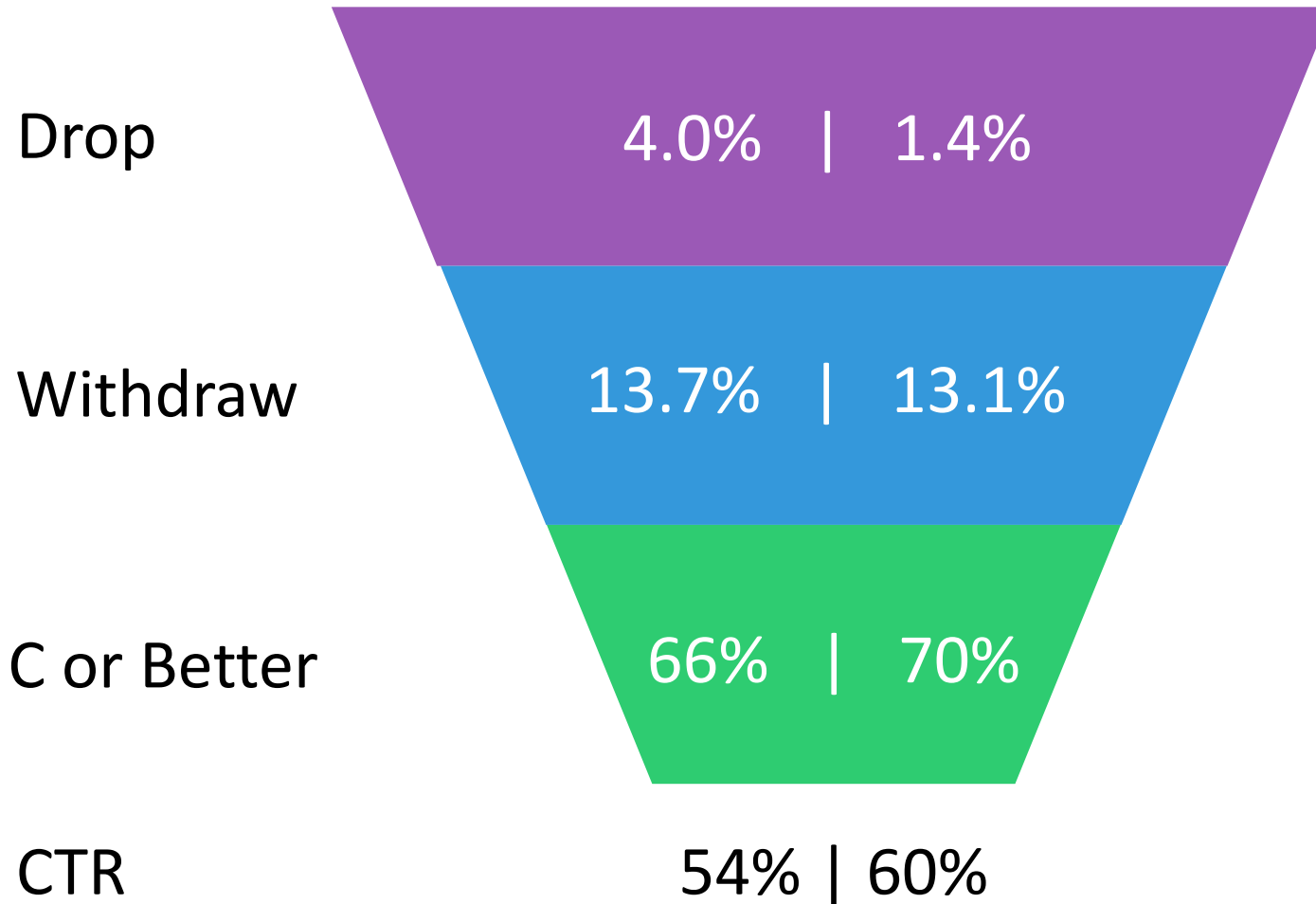
# Commercial vs OER

(Face to Face)



# Commercial vs OER

(Online)



metric



cost





# Cost-Savings Achieved in Two Semesters Through the Adoption of Open Educational Resources

Hilton, Robinson, Wiley and Ackerman

*International Review  
of Research in Open and  
Distance Learning (2014)*



# Research Context

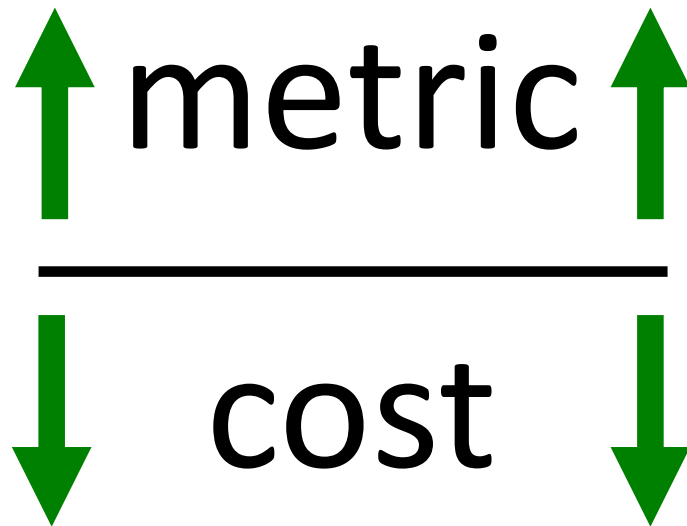
- 256 faculty at eight US colleges
- 194 taught using only TPM
- 48 taught using only OER
- 14 taught some courses using TPM, others using OER

# Methodology

- Review college bookstore website for each course
- Select the cheapest new print or new digital price from the bookstore, Amazon, and other options

# Results

- On average, required TPM for a course cost US \$90.61 per student
- Faculty received services supporting OER adoption valued at US \$5 per student
- OER were 94% less expensive than TPM



- 6% higher Course Throughput Rate
- 2.15 credits higher enrollment intensity
- 94% lower textbook costs for students

# The OER Quality Crisis

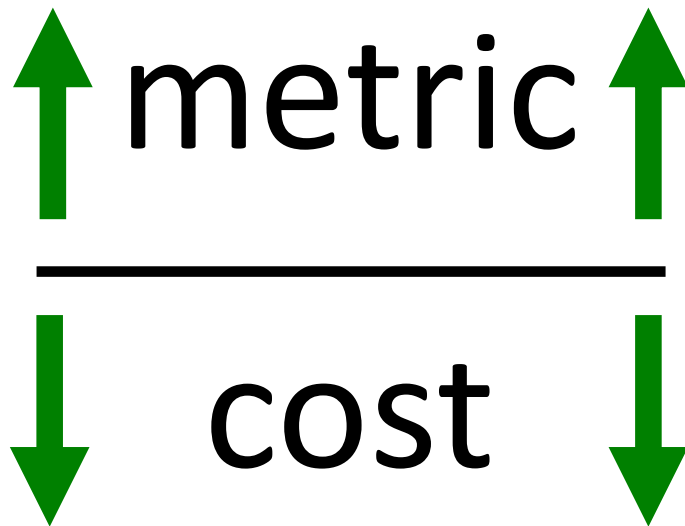
Publishing industry defines  
“quality” as a production process

Their process is  
extremely expensive

This definition is designed to  
exclude innovative models



Most importantly, their definition  
ignores results



- 6% higher Course Throughput Rate
- 2.15 credits higher enrollment intensity
- 94% lower textbook costs for students

open/ed  
open education group

[openedgroup.org](http://openedgroup.org)

## OER Degrees

When elective and required courses adopt OER so a student can graduate *without ever being asked* to buy a textbook

## Tidewater Community College's "Z-Degree" Program: Impact of OER on the Total Cost-of-Degree



# OER Degrees

- Tidewater, NOVA (2013)
- VCCS Zx23 – 23 colleges (2015)
- Achieving the Dream – 38 colleges (2016)
- California – 25 colleges (2016)

Increased efficiencies are the  
least exciting thing about OER

Wide pedagogical vistas  
come within view with **OER**



“Open pedagogy”

1. People learn when they **do** things
2. Copyright **restricts** what we're allowed to do
3. Open permits us to do **new things**
4. How will doing new things **impact learning**? Will we learn more? more deeply? more quickly? differently?

# Thank You

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