OER: Why We Must Change Our Commitments into Actions

David Wiley, PhD
@opencontent
efficiency
metric

_____

cost
metric

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

cost
metric 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

\[ \text{cost} \]
\[
\frac{1}{2} \quad = \quad 0.5
\]
\[
\frac{1}{2} = 0.5
\]
\[ \frac{1}{2} = 0.5 \]
\[
\frac{2}{2} = 1
\]
\[
\frac{1}{2} = 0.5
\]
\[
\frac{1}{1} = 1
\]
\[
\frac{1}{2} = 0.5
\]
\[
\frac{2}{1} = 2
\]
Open
open ≈ free
the internet is already free to read / watch / listen
open = a free grant of permissions
## The 5Rs

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retain</td>
<td>Make and own a copy</td>
</tr>
<tr>
<td>Reuse</td>
<td>Use in a wide range of ways</td>
</tr>
<tr>
<td>Revise</td>
<td>Adapt, modify, and improve</td>
</tr>
<tr>
<td>Remix</td>
<td>Combine two or more</td>
</tr>
<tr>
<td>Redistribute</td>
<td>Share with others</td>
</tr>
</tbody>
</table>
retain + redistribute =
download and share for free

revise + remix =
edit, improve, collaborate

reuse = formal and informal settings
## The 5Rs

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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

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>
<thead>
<tr>
<th>Course</th>
<th>Control N</th>
<th>Treatment N</th>
<th>Completion $X^2$ analysis</th>
<th>C- or better $X^2$ analysis</th>
<th>Course grade independent samples $t$ test</th>
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</thead>
<tbody>
<tr>
<td>Biology 111</td>
<td>134</td>
<td>99</td>
<td>$T &gt; C$</td>
<td>NS</td>
<td>NS</td>
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<tr>
<td>Business 110</td>
<td>228</td>
<td>227</td>
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<td>$C &gt; T$</td>
<td>$C &gt; T$</td>
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<tr>
<td>English 135</td>
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<td>46</td>
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<tr>
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<tr>
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<td>93</td>
<td>NS</td>
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<tr>
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<td>42</td>
<td>$T &gt; C$</td>
<td>$T &gt; C$</td>
<td>$T &gt; C$</td>
</tr>
<tr>
<td>Psych 100</td>
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<td>26</td>
<td>NS</td>
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<td>$T &gt; C$</td>
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<tr>
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<td>NS</td>
<td>NS</td>
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<tr>
<td>Psych 103b</td>
<td>364</td>
<td>91</td>
<td>NS</td>
<td>NS</td>
<td>NS</td>
</tr>
</tbody>
</table>
## Credits Taken

<table>
<thead>
<tr>
<th>Semester</th>
<th>OER Users</th>
<th>TPM Users</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>Fall</td>
<td>13.29</td>
<td>11.14</td>
<td>$t(8101) = 27.81 \ p &lt; .01$</td>
</tr>
<tr>
<td>Winter</td>
<td>10.71</td>
<td>9.16</td>
<td>$F(1, 6440) = 154.08, \ p &lt; .01$</td>
</tr>
</tbody>
</table>

*Journal of Computing in Higher Education (2015)*
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

Students

Drop Deadline

Withdraw Deadline

Final Grade

IRRODL (in press)
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
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

<table>
<thead>
<tr>
<th></th>
<th>Z-Degree</th>
<th>Traditional Degree</th>
<th>Difference</th>
</tr>
</thead>
<tbody>
<tr>
<td>Textbook Cost*</td>
<td>$0</td>
<td>$2,400</td>
<td>25%</td>
</tr>
<tr>
<td>TCC In-State Tuition (61 credits)</td>
<td>$9,600</td>
<td>$9,600</td>
<td>Z-Degree shaves a quarter from the total cost-of-degree</td>
</tr>
</tbody>
</table>
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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david@lumenlearning.com