

Open Educational Resources: Creating and Synthesizing the Research

John Hilton III, PhD
David Wiley, PhD
The Open Education Group
at Brigham Young University

@johnhiltoniii :: @opencontent



Open Educational Resources (OER)

“Open Educational Resources (OERs) are any type of educational materials that are in the public domain or introduced with an open license.”

UNESCO

Open Educational Resources (OER)

OER is defined in terms of copyright status.

Everyone is freely permitted to copy, edit, and share OER.



Open Educational Resources (OER)

- A utter dearth of empirical research on the learning impact of OER use throughout the 2000s allowed publishers and others to spread FUD.
- Several hype articles and opinion pieces
- Only one empirical article from 2000 - 2010

Open Educational Resources (OER)

- Create the Open Education Group & COUP Framework
- Create the OER Research Fellow Program
- Create novel research synthesis dissemination strategies

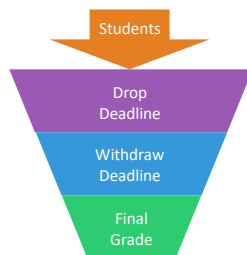
Improving Course Throughput Rates and Open Educational Resources: Results from the Z Degree Program at Tidewater Community College

Hilton, Fischer, Wiley, and Williams (2016)

International Review of Research in Open and Distance Learning



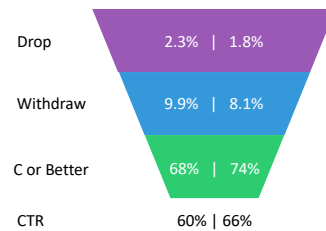
Course Throughput Rate



IRRODL (2016)

Traditional © vs OER

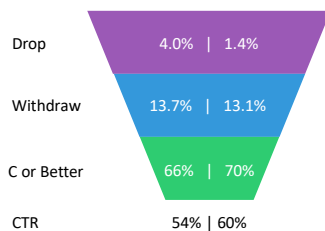
(Face to Face)



IRRODL (2016)

Traditional © vs OER

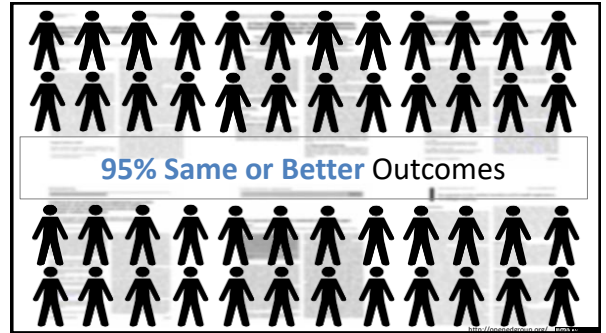
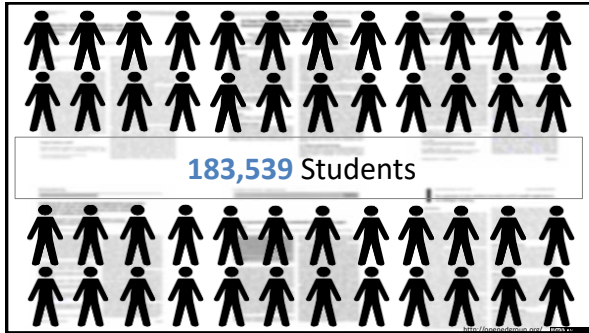
(Online)



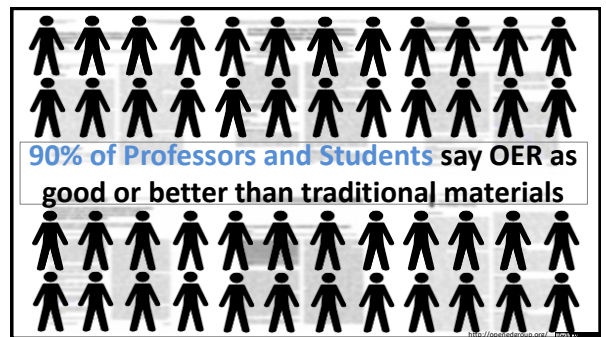
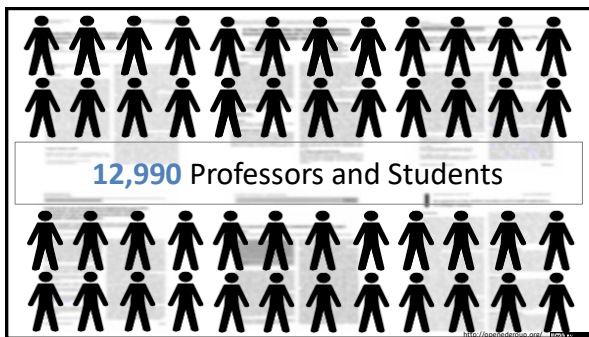
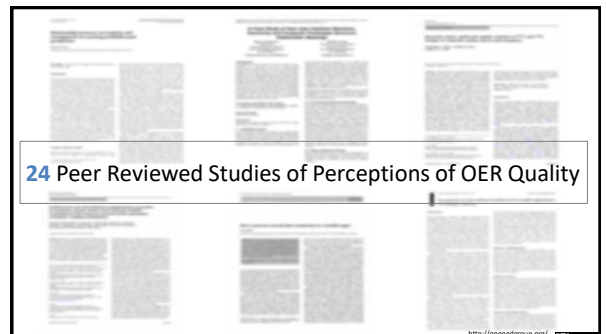
IRRODL (2016)

22 Peer Reviewed Studies

<http://peer-reviewed.com/>



Controlled for teacher variables	Controlled for student variables	Randomized	DV	Results
8 yes 14 no	9 yes 13 no	2 yes 20 no	CAOS, CLASS, completion rate, credits taken, quiz score, exam scores, GPA, drop, pass rate, withdrawal rate	3 studies did not provide results regarding statistical significance 8 reported NSD 10 results favored OER 1 result favored traditionally copyrighted textbooks



Novel Synthesis and Dissemination Techniques

- The Review Project
- The OER Adoption Impact Calculator

Studies that included data on both efficacy and perception

Research by [Feldman et al. \(2012\)](#) took place at Virginia State University, where OER were implemented across nine different courses in the business department. 1,393 students took courses utilizing OER. Researchers found that students in courses that used OER more frequently had better grades and lower failure and withdrawal rates than their counterparts in courses that did not use OER. While their results had statistical significance, because of a new core curriculum implemented at Virginia State University's Business school, the two sets of courses were not identical. Thus while these data are highly interesting, we should not generalize them too far. 315 students completed a survey regarding their perspective on the shift to the OER, and almost 95% of responding students strongly agreed or agreed that the OER were "easy to use" and 78% of respondents felt that the OER "provided access to more up-to-date material that is available in my print textbooks." Approximately two-thirds of students strongly agreed or agreed that the digital OER were more useful than traditional textbooks and that they preferred the OER digital content to traditional textbooks.

[Hibbert et al. \(2013\)](#) chronicled a study that took place at Scottsdale Community College (SCC) in Arizona. In the fall of 2012, OER were employed throughout five different math courses at SCC, affecting 1,400 students. Issues with the initial placement tests made it so that only four of the courses could be compared; nevertheless, the results of fall 2012 (when OER was used) compared to fall 2011 and 2010 showed that student results on department exams were approximately the same before and after the OER implementation. Surveys completed by 860 students showed that 78% said they would recommend the OER to their classmates. Similarly, 83% of students agreed with the statement that "Overall, the materials adequately supported the work I did outside of class" (only 5% of students disagreed with this statement). Faculty members were likewise positive about the open materials. Of the 18 faculty members who reported on their view of the OER, 50% said that it was of the same quality as traditional textbooks, 33% said it was better, and 17% said it was worse.

Gi et al. (2013) [\(OER Advisor, first published version\)](#) surveyed students over a five-year time, asking them to compare blogs that featured OER resources versus other blogs (all blogs were directly related to student coursework). Approximately 500 students were surveyed on average. 40% of

Studies that included data on both efficacy and perception

Research by [Feldman et al. \(2012\)](#) took place at Virginia State University, where OER were implemented across nine different courses in the business department. 1,393 students took courses utilizing OER. Researchers found that students in courses that used OER more frequently had better grades and lower failure and withdrawal rates than their counterparts in courses that did not use OER. While their results had statistical significance, because of a new core curriculum implemented at Virginia State University's Business school, the two sets of courses were not identical. Thus while these data are highly interesting, we should not generalize them too far. 315 students completed a survey regarding their perspective on the shift to the OER, and almost 95% of responding students strongly agreed or agreed that the OER were "easy to use" and 78% of respondents felt that the OER "provided access to more up-to-date material that is available in my print textbooks." Approximately two-thirds of students strongly agreed or agreed that the digital OER were more useful than traditional textbooks and that they preferred the OER digital content to traditional textbooks.

openedgroup.org/review

Research by [Feldman et al. \(2012\)](#) took place at Virginia State University, where OER were implemented across nine different courses in the business department. 1,393 students took courses utilizing OER. Researchers found that students in courses that used OER more frequently had better grades and lower failure and withdrawal rates than their counterparts in courses that did not use OER. While their results had statistical significance, because of a new core curriculum implemented at Virginia State University's Business school, the two sets of courses were not identical. Thus while these data are highly interesting, we should not generalize them too far. 315 students completed a survey regarding their perspective on the shift to the OER, and almost 95% of responding students strongly agreed or agreed that the OER were "easy to use" and 78% of respondents felt that the OER "provided access to more up-to-date material that is available in my print textbooks." Approximately two-thirds of students strongly agreed or agreed that the digital OER were more useful than traditional textbooks and that they preferred the OER digital content to traditional textbooks.

Gi et al. (2013) [\(OER Advisor, first published version\)](#) surveyed students over a five-year time, asking them to compare blogs that featured OER resources versus other blogs (all blogs were directly related to student coursework). Approximately 500 students were surveyed on average. 40% of

Settings

Average Cost of Textbook: \$107.00

Number of Endorsements Using OER

Average Spent by Students Using OER: \$135,000

Students Paying for Textbooks (%)

or More Textbooks Cost Per Credit Hour (%)

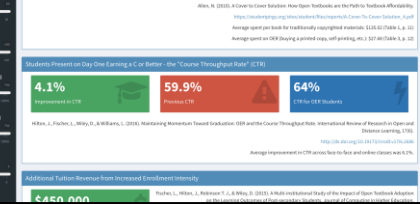
Cost of More Textbooks Per Credit Hour (%)

Additional Credits Taken by OER Users

Cost of More OER-related Study

What Are the Impacts of Adopting OER?

The OER Adoption Impact Calculator helps you understand many of the potential impacts of adopting OER instead of traditionally copyrighted learning materials. The values in this settings on the left are set as default based on the published research referenced below. Change the settings on the left so that they match the situation at your institution in order to see how replacing traditionally copyrighted materials with OER might impact your students and institution. The information below will update to reflect your model changes.



OER Research Takeaways

- A growing body of studies show that students who use OER perform as well or better than their peers who use traditionally copyrighted materials.
- Moving forward, we need more rigorous research that better accounts for student, teacher, and other potentially confounding variables.

impact.lumenlearning.com

OER Research Takeaways

- We need more studies that disaggregate data and allow us to see more clearly the impact of OER on specific populations.
- We also need studies examining the interaction between the novel pedagogies afforded by OER and student learning.

OER Research Takeaways

- There are fundamental questions to be answered about the degree of impact on learning that can be attributed to educational materials.
- Understanding the answer to this absolutely fundamental question is key to understanding much about our (AECT) field.

Thank You

John Hilton III - @johnhiltoniii

David Wiley - @opencontent