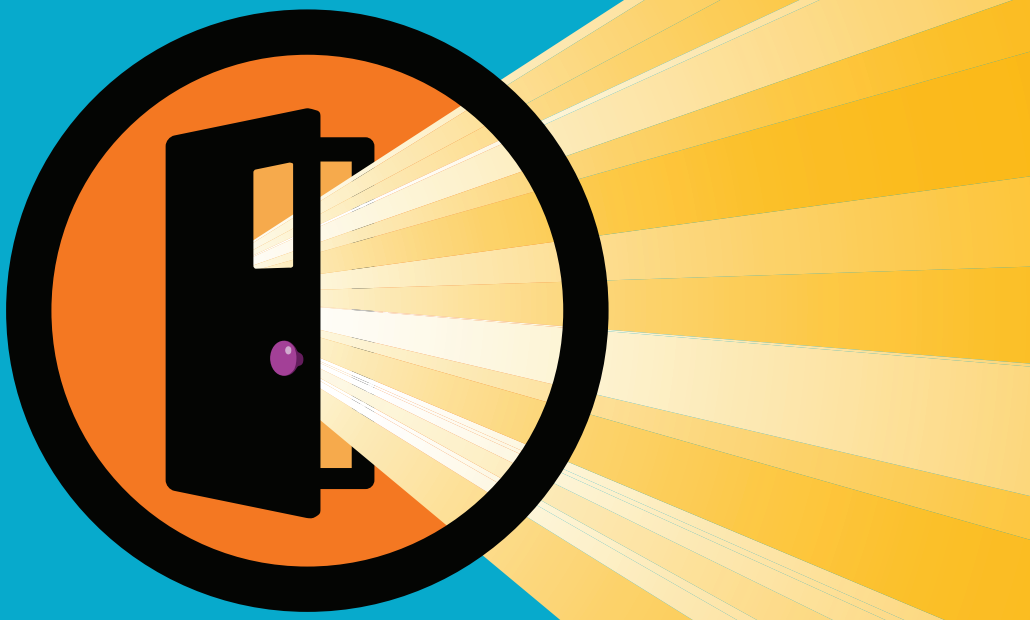

free to learn

An Open Educational Resources Policy Development Guidebook for Community College Governance Officials

BY HAL PLOTKIN

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I'm also grateful to the many other inspired and inspiring leaders of the Open Educational Resources movement I have encountered over the years, all of whom share a common sense that ours can and thus must be the first generation that begins to more fully develop all of our shared human capital, not only to be fair to all, but also to maximize our full potential as a human family. The remarkable leaders who occupy the frontlines of this noble and important movement include Hal Abelson, Nicole Allen, Kwasi Asare, Judy Baker, Richard Baraniuk, Martin Bean, Ahrash Bissell, Carl Brown, Steve Carson, Tom Caswell, Karen Cator, Barbara Chow, Lucifer Chu, Susan D'Antoni, Mary Lou Forward, Erhardt Graeff, Cable Green, Melissa Hagemann, Mara Hancock, Barbara Illowsky, Joi Ito, Sally Johnstone, Martha Kanter, Neeru Khosla, W. Joseph King, Vijay Kumar, Larry Lessig, Douglas Levin, Michael Linksvayer, Gary Lopez, Anne Margulies, Gary Matkin, Judy Miner, Lisa Petrides, Carolina Rossini, Richard Rowe, Vikram Savkar, Jim Shelton, Simon Shum, Candice Thiel, Joel Thierstein, Vic Vuchic, Phoenix Wang, David Wiley, and Esther Wojcicki.

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Contents

ABSTRACT

Open Educational Resources (OER) offer higher education governance leaders a cost-efficient method of improving the quality of teaching and learning while at the same time reducing costs imposed on students related to the purchase of expensive commercial textbooks and learning materials. Leading scholars around the world are already participating in the OER movement even without support from most higher education institutions, including community colleges. Higher education governance officials, particularly boards of trustees and senior academic governance leaders, have a tremendous opportunity to harness the advantages of OER for their institutions.

Introduction

"OER creates an unprecedented opportunity to bring continuously improving, high-quality courses within reach of more community college students, including at schools that might not otherwise be able to offer those courses." *Marshall (Mike) Smith, Visiting Scholar, Carnegie Foundation for the Advancement of Teaching*

Open Educational Resources (OER) are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits sharing, accessing, repurposing —including for commercial purposes —and collaborating with others. Ripe for future development, OER are already gaining in scope and quality and are supported by an increasingly robust community that includes many of the most distinguished scholars and educators around the globe. Academic policy makers and government officials at all levels, national, state and local, have a unique—and still largely untapped—opportunity to improve learning outcomes, reduce costs, and improve the quality of teaching by making modest additional investments in OER. Doing so will also have significant multiplier effects as the quantity of free, high-quality open learning materials steadily increases and the most relevant materials become easier to find.

A single missing ingredient is preventing the most promising outcomes associated with OER from benefiting a wider audience of students and schools: more active support and leadership from higher education governance officials. Without that leadership involvement the opportunities presented by the still mostly grassroots OER movement will not be effectively harnessed and the OER movement will continue to operate primarily on the periphery of the higher education establishment rather than closer to its core where its impact would be truly transformative.

OER include items such as free textbooks, courses, course materials, streaming audio/video of classroom lectures, tests, software and any other tools, materials or techniques used to transmit knowledge that have an impact on teaching and learning that are freely available for use. But OER are not just free learning materials and resources. OER is also the underlying open, creative, collaborative process itself, one that enables continuous rapid improvements in the quality of both teaching and learning.

"The real promise of OER is not just the free high-quality learning materials and textbooks," says Lisa Petrides, Ph.D., founder of the Institute for the Study of Knowledge Management in Education. "It's the process itself, how the materials are created, used, adapted and improved that creates a whole new set of possibilities."

While OER have been singled out by innovative scholars and some local and national government officials, and possess the potential to support significant improvements in access and success in higher education, remarkably few higher education governance officials are aware of, or are taking institutional advantage of, the usefulness, cost-savings, and quality of these resources. The information and advice in this Guide aims to address that problem and focuses primarily on OER within the context of higher education, and in particular, at community colleges, where their utility is so clearly evident.

The use of OER allows more rapid transfer of high-impact practices in pedagogy while also reducing a growing financial barrier to access in the form of increasingly costly textbooks and other instructional materials, such as password-protected online content. Unlike traditional textbooks, OER are available free online and can be printed, viewed or used on demand. In addition, some innovative newly formed, startup education publishers also release their resources under open licenses that allow for updating, customization, and personalization of content online, making teaching and learning more effective and efficient. Frequently, these resources can be ordered as print-on-demand textbooks or media files, usually at prices far lower than traditional textbooks. OER are particularly useful at educational institutions such as community colleges where students, or the schools themselves, lack the financial resources required to enable the most rapid learning and progress possible.

Early evidence indicates that OER fosters student success. Students who used one of the first high-quality OER ever developed, a math course created by Carnegie Mellon University's Open Learning Initiative, learned more quickly and at much lower costs, according to a carefully conducted double-blind study.[1] In this case, students derived benefit from the inclusion of learning paths that were created by a

highly skilled team of cognitive scientists in addition to the open nature of the course itself, which brought success within reach of all students at no cost to them.

What's more, rapidly evolving, highly sophisticated collaborative OER production and use methodologies are generating more high-quality OER each day. These materials can be applied to a growing number of courses and course levels. When these materials are further developed and used within an appropriate supportive policy framework they are likely to enable even more rapid and increasingly dramatic, measurable improvements in both the quality and speed of teaching and learning. They also substantially reduce, and in some cases even eliminate entirely, costs for learning materials imposed on students.

The present lack of higher education governance involvement in the OER movement is primarily a generational issue. Despite their many skills and talents, the vast majority of today's higher education governance officials have no experience assisting or supporting the development and use of OER. Typically, many of the most senior officials, including boards of trustees and collegiate foundation development officers, have had little or no exposure to OER, in contrast with their personal involvement in other campus-based activities with which they are more familiar. Despite documented widespread interest among both faculty and students, many senior higher education governance officials may not even know what OER are, or may confuse OER with less useful materials, such as "online textbooks" or, more generally, "stuff you can find on the Internet."

To date, only a handful of higher education boards of trustees, regents and senior academic officers have conducted public hearings, held meetings or offered seminars that focus attention on the institutional opportunities associated with OER, or on how their schools might benefit by participating in the OER movement in a more systematic fashion. This Guide seeks to change that by helping higher education governance officials better understand Open Educational Resources and their benefits to students, faculty and institutions of higher learning. This paper offers an overview of OER, examines the latest developments in the field and explores policy implications for those charged with governing higher education.

Q: What can Higher Education Governance Officials do to take advantage of the tremendous value of OER?

A: The simple answer is to summon the will and enact a governing policy that institutionalizes support for these activities.

1 The Open Learning Initiative: Measuring the Effectiveness of the OLI Statistics Course in Accelerating Student Learning Marsha Lovett, Oded Meyer, and Candace Thille, Carnegie Mellon University, 2008: http://oli.web.cmu.edu/openlearning/files/theinitiative/publications/jime-2008-14.pdf

A Short History of the OER Movement

If you have not heard of OER before this, you are not alone. The OER movement is only a decade old and has received scant attention in the popular commercial press and media. The movement began in earnest in 2001 after Massachusetts Institute of Technology President Charles Vest announced that MIT would establish a groundbreaking and unprecedented new program, OpenCourseWare, based on a proposal from members of MIT's faculty. The goal of the OpenCourseWare project, Vest explained, was to make all of the learning materials used by MIT's faculty in the school's 1,800 courses available via the Internet where it could be used and repurposed as desired by others without charge.

"OpenCourseWare looks counter-intuitive in a market driven world," Vest observed at the time. "It goes against the grain of current material values. But it really is consistent with what I believe is the best about MIT. It expresses our belief in the way education can be advanced—by constantly widening access to information and by inspiring others to participate."

Inspire others to participate it has. Scholars at more than 250 colleges and universities, a majority of them outside the United States, have joined forces or participated in the OER movement in some manner. In most cases, though, their participation has occurred primarily from the bottom up. Very few educational institutions, particularly in the United States, have devoted meaningful material resources to this effort.

At the same time, hundreds, perhaps thousands of professors, instructors and teachers have already been individually investing in the goal of greater access by rapidly integrating OER into their pedagogy, typically in an ad-hoc fashion and in most cases with little or no support from their parent institutions. Often working after hours without compensation for their efforts, many of the most effective and forward-thinking instructors are already using the Internet, and practices and materials associated with the OER movement, to share lesson plans, course outlines, teaching methods and materials, articles, essays, texts, exams, illustrations, exercises and are even streaming videos of their in-class lectures.

In the process, these instructors have begun to open the doors to higher education wider than ever. They are bringing a diversity of more affordable, high-quality learning experiences within reach of growing numbers of students, many of whom are financially or geographically disadvantaged. In the process, many of these instructors are also discovering new and better ways to teach and cultivate learning as they take a "virtual" look over the shoulders of others who teach the same subjects.

Why So Little Attention from Higher Education Officials?

Three main factors appear to account for most of the current lack of higher education governance attention to OER: cultural, chronological and systemic.

On the cultural side, OER have not been a part of pre-existing educational practices within the often tradition-bound higher education enterprise; on occasion, the reliance on sound, proven and reliable past practices can sometimes make it difficult for promising new teaching methods to gain momentum. Constrained by past practices, many instructors operate in environments that leave little room for innovations, except at the individual classroom level, and provide even less support for any attempts to expand successful classroom innovations to a larger scale. The brightest and most dazzling teachers can light up a classroom but, unpreserved, that illumination is then usually lost forever, except in the minds and memories of a few fortunate student witnesses.

On the chronological side, it is fair to note that a majority of collegiate board members and senior academic officers holding positions of authority today, those who could lend material support to these activities, assumed those leadership posts well before the relatively recent advent of the opportunities associated with OER. Like many Internet-related skills, knowledge and expertise about OER within higher education institutions today is often inversely proportional to rank. In this case, higher education's foot soldiers, teachers and learners, frequently know much more about OER than the generals who command the system.

Finally, the initial lack of OER that met the requirements of the Americans with Disabilities Act (ADA) and the Federal Rehabilitation Act (FRA) also slowed down adoption of OER by higher education institutions, in particular, public schools such as community colleges that lacked the resources needed to remedy violations of these laws as required when challenged. This systemic obstacle is being removed, however, thanks to more recent efforts focused on the creation and use of OER that meets the requirements of these laws, which in turn permits the use and continuous improvement of these materials within public educational institutions without fear of costly legal challenges related to the rights of disabled students.

Optimum progress, however, depends on more rapid appreciation of OER-related opportunities by collegiate governance officials. Faculty, students and educational institutions will all benefit by developing a shared understanding of the possibilities and promise associated with OER. That shared knowledge will accelerate adoption and creation of new content.

This Guide strives to encourage and enable collegiate governance officials to more rapidly comprehend and capitalize on this dramatic new opportunity to modernize and improve the educational institutions they govern, to better serve faculty and students, and through them to enhance our society, culture and economy, whose future prospects depend largely on the success of our national educational enterprise.

Improving the Quality of Teaching and Learning through Resource Sharing and Collaboration

In most cases today, the quality of education, when education is available at all, is usually a function of the particular circumstances and conditions in an individual classroom or school. This has sometimes been called the "silo" model of education because educators and learners are often unaware of, or cut off from, better teaching methods and techniques used elsewhere. If a student is fortunate, she may have access to a school and instructors whose curriculum and teaching methods enable the maximum degree of learning in the shortest possible time. The vast majority of eager learners do not have that opportunity. Many do not have access to excellent teachers or the most current and effective learning materials, including texts, videos, illustrations and practice tools. Some may need extra assistance to learn key concepts.

OER address issues of quality and access and enable continuous improvements in teaching and learning as respected higher education institutions create and share a wide variety of high-quality educational resources free of charge. OER enable teachers and learners to access the best educational resources that are available to meet their specific needs. In the process, a new collaborative model that builds cooperating communities of teachers and learners is augmenting the old "silo" model of education.

By drawing on the work of their peers, instructors who take advantage of OER can provide multiple representations of concepts that present a subject from different perspectives and angles. Because these materials are free, students and self-learners can repeat their exposure to different lessons as many times as needed, including lessons about the same subject offered by different instructors, in order to facilitate a deep understanding of the material. OER tools can also be used to form virtual study groups, which accelerate learning. Tests can be used as assessment devices that point students to specific material, including text, lecture presentations and practice tools that fill identified gaps in their knowledge. OER also give instructors access to materials and teaching methods used by others who teach similar classes, prerequisites and higher-level courses, which supports the more rapid transfer of high-impact teaching methods than would otherwise occur. A single course drawing on OER can contain high-quality learning materials developed by dozens of different educators. Conversely, when courses are open, as at MIT, instructors can reference what students are studying in other classes to reinforce the connections and enhance learning.

Instructors, students and self-learners who use OER can replace "flat" educational experiences, where opportunity is a function of what one instructor or school can offer, with a constantly evolving multidimensional educational process brought to life by dynamic teams of subject area experts. Coupled with the transparency it creates, the growth of the OER movement promises to steadily enhance the quality of teaching and learning over time as the material is updated, improved, built upon and adapted for specific user groups.

"The dramatic expansion of OER has created great new opportunities for improving teaching and learning. By providing access for all and contributing to a global commons, OER holds the promise of equalizing the opportunity for learning across the globe," said Marshall (Mike) Smith, Visiting Scholar, Carnegie Foundation for the Advancement of Teaching.

Ensuring Quality

There are currently two primary methods employed to ensure the quality of OER. The first replicates traditional academic practices by using a carefully vetted, top-down authoring system in which an institution places educational learning resources that carry its brand into an open format for free use, re-mixing or adaptation by others. In this instance, the institutions are responsible for the quality of the materials. The second methodology relies on the same basic procedures used in the open source software community. In this model, an unlimited number of authors collaborate on the creation of OER. Both of these primary OER production methodologies stimulate new forms of knowledge sharing.

The differences between these two approaches reflect a divergence in philosophy between those who believe a centralized and carefully controlled authoring system ensures quality and others who maintain that quality is best enhanced by an open process that invites contributions from as many people as possible. Those who prefer the branded approach, where an institution guarantees quality, contend there is no practical substitute for reliance on known authorities whose credentials are certified. On the other hand, those who prefer the more open OER production methodology maintain that the best way to ensure quality is to share and spread the responsibility for creating and maintaining quality among a greater number of contributors. Those holding this view often cite open source software programmer Eric Raymond's observation, published in *The Cathedral and the Bazaar*, that "…with enough eyes, all [computer programming] bugs are shallow…" The same can be said of shoddy or uneven scholarship or teaching, which endures and sometimes even thrives only when isolated from outside scrutiny. The healthy contest between these two models of OER production and improvement replicates the current division in the global software industry, where both schools of thought—top down and bottom up—have made valuable contributions.

The benefits provided by OER to faculty and students have been documented in two recent studies conducted by researchers at Tufts University and Utah State University, respectively. Tufts' OpenCourseWare site has been available online since June 2005. The site contains 22 courses from six Tufts schools focusing on the health sciences and international affairs. The most popular course materials, according to download logs, include lectures, readings, lecture handouts and syllabi.

Tufts recently conducted an OCW Intercept Survey, a web-based, pop-up survey instrument, which yielded 641 respondents for an 8.9% response rate. Tufts then sent a follow-up web-based survey instrument to volunteers, generating 42 respondents for a 20.3% response rate yielding 28 unique user profiles. Taken together, these user logs and survey data indicate that among users of the site, over half are self-learners, nearly one-fourth have their doctoral degree and just under 20% cite medicine or health sciences and technology as their primary interest. On average, visitors to the Tufts' site spend more than 30 minutes per visit reading and reviewing course materials. Nearly 40% of users download materials during their sessions. Surveyed site users who were faculty members indicate that Tufts OCW positively affects their teaching practices by providing additional teaching materials, by enabling them to integrate Tufts materials into their courses, by increasing their knowledge levels in certain areas and impact how course materials are developed by emphasizing instructional technology. All told, nearly 300,000 unique users accessed the Tufts OCW website within its first 15 months of operation.

Another recent study on the reaction of faculty members participating in the MIT OpenCourseWare (OCW) project, conducted by Preston Parker at Utah State University, yielded a similarly positive review. Parker used three sources of data for his study: (1) five years' worth of archived emails from the instructors at MIT to the school's OCW project administrators that discussed the benefits they had received by participating in the project, (2) the responses from three previous annual instructor surveys, and (3) interviews with the instructors themselves.

Parker notes in an abstract of his findings, "The results show that there are many tangible benefits to MIT instructors participating in MITOCW. They feel they have more recognition academically because their work is out there to be viewed and used. They feel connections have been made with other instructors that may not have if it were not for MITOCW. The instructors were better able to understand what other colleagues were doing.

These connections have resulted in better publishing opportunities and grant proposal efforts. Instructors also feel that students who sign up for their classes are more prepared for the course. It is also convenient for the instructors to have the materials available and online for current and past students."

In addition, other studies are currently underway to assess the quality of OER vs. traditional commercial educational materials in terms of learning outcomes and student success. The early data from these studies indicates a clear advantage for certain forms of OER. Data and conclusions from these studies will be integrated into future versions of this paper.

The MIT Dilemma: Too Much Information

MIT's bold decision to release vetted, high-quality learning materials for free public use and repurposing led many scholars at other institutions to similar acts of scholastic generosity. This avalanche of learning materials created one of the OER movement's first major problems: the inability of many potential users of these free learning materials to easily and quickly determine which resources best fit their needs, as well as ensuring that the materials of interest to them could be legally used, reproduced or adapted. As a result, despite the increasingly frequent availability of better, cheaper, more robust and dynamic learning materials, the typical college and university instructor continues to rely today, often with little enthusiasm, on conventional commercial learning materials, including old fashioned textbooks, which do not pose similar adoption hurdles.

A number of related efforts are taking root that are aimed at helping higher education instructors overcome the obstacles to the adoption of OER. These companion efforts include the increasing popularity of the public, standardized suite of intellectual property (IP) licenses and tools developed by the non-profit Creative Commons, which can easily be appended to any printed or online document or media. These human-, lawyer-, and machine-readable IP licenses and tools allow scholars, instructors and authors to mark their creative works with the specific freedoms their creator wants it to carry relative to use by others. As such, scholars, instructors and authors can now share their works on clear terms acceptable to them, which range from giving up all rights to the preservation of commercial exclusivity when desired.

Seeking to increase the utility of these materials, some advocates are now organizing OER into repositories, essentially online OER libraries that are often grouped by subject matter or level of instruction. Several teams of skilled and motivated programmers and academic experts are also developing new tools, including software programs and websites, that can be used to collaboratively create OER, assemble discreet OER chunks or modules into more complete and comprehensive works and to more easily publish, as well as print, OER using interoperable formats that make the material more functional. These efforts include formatting the materials so they can be accessed with a variety of digital devices ranging from computers to cell phones to EBook readers, and/or printed in hard copy for those without access to the Internet.

In just the few short years since MIT got this ball rolling, there has been a flood of activity on the OER supply side, as hundreds of thousands of high-quality learning material items have been placed at the disposal of the public for their free use and repurposing. Making sure that faculty and students derive the maximum potential benefit from the availability of these free, high-quality academic resources, particularly at financially hard-pressed public institutions, is the responsibility of higher education governance officials and policy makers.