Open Educational Resources: Cost, Collaboration and Consideration

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Abstract

This paper attempts to examine the use of Open Educational Resources in both higher education and K-12 levels in the United States. Benefits of OER are explored, as are considerations education administrators must give prior to jumping head-first into using OER. Various OER applications are discussed and examples from literature and real-life interview are used to show the benefits of OER and the reluctance that some universities and school districts have in using such new technology that goes against the grain of traditional instructional materials.

Introduction

As more and more colleges around the world are offering open access to university courses, and using technology to conduct administrative tasks, why are schools in the United States still stuck on textbooks as the standard learning tool for their students? At one point, Trapper Keepers and calculator watches represented high-tech learning tools, and those have long since gone by the wayside, as they have been replaced by computers, iPhones, iPods and the like. Despite all of the technology available, many US schools at both the K-12 and higher education levels are lagging when it comes to using the innovative tools at their disposal. Lackluster standardized test scores and disengaged students at all levels are causing many to ask the question, "Are there other, better options for student learning?" Some schools have of course discovered there are better ways to teach and for students to learn; many of these schools learned one of the best ways is by replacing or supplementing traditional materials with open educational resources (OER.) While OER remains more popular at the higher education level, they are not the only ones making the jump to using open source content; many K-12 schools and school districts around the United States are jumping on board in an effort to increase student learning while reducing the cost of instructional materials.

While the concept of open source software has been around for decades, OER is still in its relative infancy and has only shown prevalence in the last several years. OER was first officially defined in 2002 at the United Nations Educational, Scientific and Cultural Organization (UNESCO) conference (lecture, 2009). There are many advocates and champions of the OER movement; perhaps most notable is the William and Flora Hewlett Foundation

whose mission is to transform teaching and learning with open education resources (Hewlett, 2009). Despite its infancy, OER is catching on with educators around the world and growing in leaps and bounds. The United States is also slowly jumping on board with OER. However, just because OER is catching on in the US, does not mean that all of the kinks have been worked out just yet. For starters some educators are weary to latch on to technology that is still in the beginning phases or that violates current agreements they have with publishing companies. Many school administrators also want to make sure that OER is viable and sustainable before abandoning current traditional education resources all together. Additionally, some are concerned about the quality of the content that OER has to offer, as not all content undergoes a standardized review process. To top it all off, not every student or school has access to the technology required to access OER in its many forms. Despite the challenges, OER is growing to be a powerful force in education at all levels and many school administrators, students and teachers are excited to use the innovative methods and tools OER has to offer.

What are Open Educational Resources?

Open educational resources fit into the open source/open access movement as a whole by providing free resources that are accessible to anyone who desires them. Usually the costs involved are for staff training or technology required in order to access OER (Hirsch, 2009), and not the physical resource itself. Open source allows users to change, improve and customize items to fit their needs, with the unspoken expectation that they will release the "new" items back into the open world to share with others. Perhaps the best way to define OER is as follows, "OER are teaching and learning materials freely available online for everyone to use, whether you are an instructor, student or self learner" (OER Commons wiki, 2009). OER resources include, but are not limited to full courses, syllabi, lectures, quizzes, classroom activities, MP3

files, online textbooks and readings and course modules. While some consider OER to be a segment of open courseware, many also argue that open courseware (OCW) in itself can also be considered OER (Ghalib, Chandrashekara & Talawir, 2009) although OCW is mainly used at the college and university level, rather than K-12.

Despite the early stage, it appears that OER is catching on and showing no signs of slowing down, especially in higher education. Many college and university programs across the globe are using open sources to build their college and university programs because OER gives the broadest number students maximum access to educational resources, while keeping costs down (Ghalib, Chandrashekara & Talawar, 2009). Major world organizations, such as the United Nations, are also on board with increasing the use of OER in education. The United Nations views OER as a way to bridge the digital divide among nations, removing the financial and technology barriers developing nations once faced in developing successful education programs (Ghalib, Chandrashekara & Talawar, 2009). In the United States, schools like MIT, Rice University, Yale and Utah State University are leaders in providing OCW as well as OER materials. MIT, Utah State University and Yale all offer full courses taught at the universities through their websites. Additionally, many of those sites, such as Rice Connexions offers resources beyond full courses and allows users to pick and chose the resources they want from a variety of areas to use to tailor a learning program to suit their needs.

Benefits and Experiences

One major benefit of using OER at the college level is that it allows students to access information in forms that fit their lifestyles better than traditional resources. For example, students can listen to lectures or assigned readings on their iPods or view reading material online

versus a standard textbook. An added benefit is that students can listen to podcasts or MP3 files while traveling between classes, driving or working out – perfect for the busy student on-the-go (we all know there is rarely such a thing as a bored, stagnant college student.) Yet another benefit to students is that there is little, if any costs passed on to students to access the technology, where as some textbooks and materials for one course can cost several hundred dollars apiece. It is no secret that the cost of college continues to rise, and many students are already stretched to the brink financially. Open source content allows a bit of reprieve to the otherwise empty wallets of most college students. To be fair, while the materials themselves may be free, the costs may be passed off to students in the form of increased tuition and fees, but few if any, schools directly charge students for the materials.

In addition to being a cheaper more desired format by many students, OER can help to disseminate up-to-date information faster and more efficiently than traditional textbooks. Most textbooks only publish new editions every few years or so, meaning a lot of current information must wait to be published. In rapidly changing fields such as health science or education, many textbooks are obsolete before they have been used. As Sanford Forte, director of www.opensourcetext.org , points out that standard textbooks are static and the content remains the same until the next edition is published (O'Hanlon, 2008). If teachers are using open source content, they can change or update the information quickly and efficiently, rather than wait for a new edition of a textbook to be printed, meaning students have access to cutting-edge information as it happens.

Although OER in the US initially gained popularity in the higher education realm, many K-12 schools are now looking to use OER to further student learning by using innovative tools while also cutting the cost of instructional materials, one of the largest items in a school's budget

(Levy, 2009). The San Jose Unified School District is in the process of launching a pilot program with Curriki, a leader in OER at the K-12 level, to save money on instructional resources while looking for innovative ways to enhance student learning. The San Jose Unified School District must cut costs by $250 per student for the 2009-2010 school year and by $350 per student for the 2010-2011 school year. The district hopes that by partnering with Curriki, student learning and outcomes will be maintained, despite the massive funding cuts. San Jose is not the only school district to get on board; the state of Wyoming is following suit by sharing its year-long Spanish curriculum on Curriki (Levy, 2009). Additionally, instructional materials are usually one of the more costly items in a school's budget and it is also one of the first to get cut (Levy, 2009). A recent study also shows that many teachers are passively engaged when textbooks are their primary source of instructional material. Studies show that teachers who are more engaged in teaching the materials have higher achieving students, on average (Levy, 2009). There are likely hundreds of US schools and school districts that are adopting OER materials in an effort to cut costs and ramp up student learning via more engaged teachers and innovative materials.

While students may have the most to gain from OER, they are not the only ones. Open educational resources can help develop quality educators through the sharing of ideas and content. Of course, this could lead to greater peer criticism and review, but in general, most users are not out to critique existing resources, at least not at the K-12 level. The OER Commons wiki warns potential users if they do not want their content edited, they should not submit it to the site. However, the increased potential of peer review should not be seen as a detriment to sharing content, but rather as a way of educators being able to tailor the content to exactly to the needs of their unique classrooms and students, something that most standard

textbooks and materials do not allow for. Perhaps Sanford Forte put it most eloquently when he said, “textbooks don’t have the flexibility, nor can they capture the essence of learning in a social, collaborative context” (O’Hanlon, 2008). Levy (2009) also points out, “creating derivative works is a powerful way for teachers to employ differentiated instruction using the same root lesson.” The OER method of collaboration also allows newer teachers to benefit from the knowledge and expertise of veteran educators (O’Hanlon, 2008), yet another benefit to embracing OER. Ellyssa Kroski found open education resources from other experienced university educators invaluable when trying to structure her own courses at San Jose State University (Kroski, 2009). Many proponents of Open educational resources (OER) argue teaching is the sharing of knowledge in and of itself; why not use teaching resources that use that very same vision (Levy, 2009)? The use and sharing of OER certainly allows for the collaborative model that many educators desire.

OER does not just promote collaboration among educators, but it also connects the education community with other fields. For example, Michelle Villarreal, an honors teacher in the Metropolitan Nashville School district uses opensourceteaching.org to help her honors students make real-life connections to academic content. Villarreal and her colleagues noticed that students, especially her honors health sciences students were not motivated by the current curriculum that was in place. Villarreal recently used resources from opensourceteaching.org to connect health science students with a medical researcher via a live online interview. Villarreal noticed that students were not only enjoying the new method of learning, but they were also expanding their horizons; prior to showing students the interview with the medical researcher, most students viewed the medical field as something they saw on television through shows like *House* or *Grey’s Anatomy*. The interview helped students to see that there was more to the

medical field than they ever imagined and inspired them to seek out more information. Students now look forward not only to the interviews and interactions with various experts in the field, but also to other content offered in the course (Collier, 2009). Mary Catherine and David Sevier, honors teachers in Rutherford Tennessee also noticed their students seemed disengaged from standard learning; as honors students, they were certainly bright and completing the work according to required standards, but engaged learning was lacking. The Seviers partnered with St. Jude's Children's Hospital and Nobel Scholars at Vanderbilt University in a similar way that Villarreal did with her students. The Seviers noticed an increased enthusiasm for leaning from their students and were thrilled at the real-life connections that students could not obtain from a standard textbook (Collier, 2009).

Costs, Review and Other Considerations

With all of the benefits of OER can offer students, teachers and education administrators, there are factors to consider before jumping head-first into an OER-based curriculum. While most students are able to use open education resources at no cost, there are still some costs involved on the administrative side. OER does not necessarily equate to free access, meaning that certain resources could be just as expensive, if not more expensive in some cases, than traditional instructional materials. Additionally, some schools may not have the funds to bring their computer hardware up to date in order to handle the level of technology that many open education resources require. For example, not all classrooms in the Nashville Metropolitan School District are equipped with computers that can handle anything more than basic audio files; thus there is a discrepancy between classrooms and schools in the district and what students are able to take away from the experience (Collier, 2009). Villarreal and her colleagues are doing their best to bring all classrooms on par with each other, but financial resources are limited

so it could be years before that becomes a reality. Unfortunately, many cash-strapped schools are in the same boat.

While OER has many advocates and champions, not everyone is excited. Currently, OER's largest opponent appears to be the publishing industry, as many publishers have a stronghold when it comes to K-12 instructional materials. Many school districts across the United States have agreements and partnerships with various publishing companies. For example, the Los Angeles Unified School District (LAUSD) uses Houghton Mifflin materials almost exclusively, especially in the area of English and language arts. Despite the current stronghold, it is only a matter of time before publishing companies need to rethink their approach to providing educational materials. Even at the university level, many acknowledge that publishers are behind in meeting the needs of scholars (Gold, 2007). According to Forte, publishers have the unique opportunity to change the way they do business if they still want to bring in the same revenue they did pre-OER; those who do not change will become obsolete (O'Hanlon, 2008). It appears that now is the time they will either sink or swim and it remains to be seen if publishers of educational materials will survive the OER revolution.

While the content of publisher's standard materials is fine and meets the prescribed needs of districts, they leave teachers with little wiggle-room to adapt lessons to student needs. Kristen Diehl, a teacher with LAUSD attempted to supplement the standard curriculum after she noticed that some of her English language learners and behavioral intervention students were struggling to understand Houghton Mifflin's standard curriculum. In a last-ditch attempt to assist her first and second grade students, Diehl integrated the standard materials with additional materials and lesson plans she found online through an OER site. As the new techniques were introduced, Diehl noticed that many of her students were not only participating more, but they were actually

learning the concepts and were having a fun time doing so. She also noticed that students spelling and grammar quiz scores were improving. All was well until a school administrator stopped by her classroom one morning, only to discover Diehl was not sticking to prescribed curriculum. She was disheartened when she was told by school administrators to stick with "Open Court," a segment of the language arts curriculum developed by Houghton Mifflin. To this day, Diehl is not sure if she was told to stop because of an exclusive agreement the district had with the Houghton Mifflin company; but what she does know is that student performance slid when she resumed standard curriculum (K. Diehl, personal communication, October 14th, 2009.)

Diehl's disheartening experience is one of the major reasons OER in K-12 districts continues to grow. Frustrated teachers, tired of the lack of results they get by using traditional, standard curriculum are creating their own OER sites and non-profit groups. Many educators agree the problem is not so much with the educational materials themselves – one can hardly argue that a major publishing company would produce inaccurate content in their materials that would interfere with student learning – rather, the real problem lies in the fact that many teachers cannot alter the publishers materials to fit the needs of their students. It should be obvious that classrooms are not homogenous learning environments and each student has a different style of learning. Additionally, many students at the K-12 level have learning disabilities or behavioral issues, sometimes caused by learning disabilities (such as ADD or ADHD) making it difficult for these students to grasp the concepts sterilely presented in traditional materials, as demonstrated by Diehl's students (Diehl, 2009). Rob Lucas, a doctoral student at Stanford University developed teacherslounge.edtime.com in response to stale and dated textbooks. Sanford Forte created opensourcetext.org in an effort to combat the high cost of textbooks while offering

access to more up-to-date information than a textbook could ever offer. Many other OER sites, developed by frustrated educators are popping up in response to current lackluster materials (O'Hanlon, 2008.)

Given the rapid growth of OER, it is imperative that OER providers create guidelines to ensure the quality of materials available, as establishing and maintaining quality content is essential to the growth and sustainability of OER. Some education administrators, especially at the K-12 level are concerned that using open source content lessens the quality of the content available – a valid concern. However, companies like Curriki have developed a review process to ensure every piece of content on their site is relevant. Curriki currently has 25,000 pieces of content on the site, including 300 full courses. Each piece submitted to Curriki undergoes an extensive review. The first layer of review is done by a Curriki staff member to make sure content is relevant to education, while also remaining non-offensive. The second layer of review is done by a subject area specialist to make sure the content is accurate and well-suited for the site. Rice University also monitors content placed on its site to ensure that the material is high-quality and accurate to the subject matter (Kroski, 2009). While there may be some OER hosts who do not review content and allow users to post anything, most OER content providers are committed to providing quality materials, as it is the only way the OER movement will survive and thrive. Sanford Forte also points out that the review process for quality OER sites really is not any different than the review process that standard textbooks go through, if anything the review process might be better, as there is a more diverse review board (made up of other educators) rather than copyeditors hired by publishers, who do not work in the education field (O'Hanlon, 2008).

Closing Thoughts

Like other open source applications, OER has excellent potential for long-term sustainability. Open source software (OSS) and OCW seem to be growing every day. At one time, computers and software were limited to the privileged few that could afford such technology. Even though some could afford it, there were few "computer geeks" willing to take on the task of making existing software applications better. OCW was also not without criticism, as some feared OCW would detract from degrees offered by major colleges and universities. As both OSS and OCW become more prevalent and long term solutions, OER also continues to gain popularity and many now see the benefits of using such technology. Thankfully, OER is not just for use at the college and university level as many k-12 schools can also greatly benefit from using OER. While it may take years to determine the impact of OER at all education levels, and the overall sustainability, the future looks bright.

There certainly is a lot to consider before educators make the leap into using open education resources. Cost, content, student outcomes and overall sustainability are all important things educators and administrators must take into consideration before committing to OER. However, now is an ideal time to get on board with OER, as it only seems to be growing in popularity among K-12 and higher education segments, not just in the United States, but also around the world. While the long-term uses and benefits of OER have yet to be realized by the general population, one thing is clear: educators must quickly find ways to provide students access to high-quality teaching and materials while sticking with stringent budget restrictions. The sooner we get on board with open educational resources, the better off our students at all academic levels will be.

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