Redefining Practice: A Case Study in the Adoption of Open Educational Resources

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Abstract

The debate regarding Open Educational Resources (OER) is beginning to pick up speed within higher education among learning institutions, teachers, and even students, thus driving the development of OER. This movement is not just about expanding access to materials and financial savings, it is equally about creating, collaborating, and participating with other teachers and learners, and leaving a footprint at the forefront of a new educational era. It has particular relevance to those who educate in a rural setting at a time of limited financial resources. The following case study outlines the embryonic stages of the department-wide adoption of OER by the Department of Teacher Education at Fort Hays State University. This paper documents the rationale and philosophy behind the project, the project and methods used to implement it, and some of the lessons learned and future implications at this early stage of the process.

Keywords: Open Educational Resources, Teacher Education, Textbooks, Technology, Online, Resources, Case Study.

Introduction

To fully understand the impetus for and implications of this adoption of open educational resources, one must first understand the setting where this project takes place. Located in Western Kansas on Interstate 70, halfway between Denver and Kansas City, Fort Hays State University (FHSU) is a public institution offering degrees to both on-campus students (35%) and online students (65%) (Fort Hays State University, n.d.a). FHSU was founded in 1902 as a teacher's college and is now known as the Midwest leader in technology and forward-thinking entrepreneurship. More than 13,000 students from across the United States (50% Kansans) and over 30 foreign nations are enrolled at the associate's, bachelor's and master's levels through 28 academic departments (Fort Hays State University, n.d.a). The majority of students are nontraditional with the average age at 24, and 30% of students are 25 or older (College Portrait, 2013). Approximately one out of every four students is classified as low income (College Portrait, 2013).

The Department of Teacher Education (the department) is housed within the College of Education and Technology at FHSU. With over 1,000 students (Department of Teacher Education, 2013, p. 13) the department is one of FHSU's largest (College Portrait, 2013). Most of those students are earning their degrees online while holding down full-time jobs and raising families. For all of its students, the department has a mission "to prepare innovative teachers with exemplary technological, pedagogical and content knowledge, by building partnerships, providing meaningful clinical based practices, engaging in scholarly activities, and by advancing professionalism through lifelong learning" (Department of Teacher Education, 2013, p. 3). Realizing that mission depends, in part, upon faculty who are trained in and utilize innovative technologies for instruction (Department of Teacher Education, 2013). Towards that goal, the department is now in the process of adopting the exclusive use of Open Educational Resources (OERs) in all Teacher Education courses at FHSU.

Background

Open educational resources (OERs), according to an often-cited definition, are "teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others" (Atkins, Brown, & Hammond, 2007). The movement is one that, in recent years, has garnered significant support, demonstrating a number of widespread benefits to the institutions that have welcomed the innovative approach.

The aim of OER is to improve access to learning opportunities by sharing knowledge and learning resources. By joining this international community of educators you can save time, cut costs and contribute to improving the quality of learning in your own classroom and around the world. The OER movement seeks to stimulate, facilitate and catalyze growth of the pool of learning resources on the Internet, which circumvent barriers to access and lift restrictions on usage, thus improving education as a social good. With OER you are free to use, adapt, mix and share the resources, and become part of this growing community. (WikiEducator 2011)

"Despite over a decade of research, development, foundation funding, and other efforts, open educational resources (OER) have yet to show a discernable impact on public education in the United States. Open education resources are often used in distance education programs in a supplementary fashion alongside traditionally copyrighted materials" (Butcher & Wilson-Strydom, 2008). However, open textbooks can also be used in classrooms to replace expensive, proprietary textbooks. Several teachers in higher education settings have examined the possibility of substituting open textbooks for proprietary textbooks (e.g., Baker, 2008; Baker, Thierstein, Fletcher, Kaur, & Emmons, 2009), but K–12 education has been slower to respond to the open textbook opportunity. This delay is partly attributable to textbook selection processes that are typically slow and bureaucratic (Armstrong & Bray, 1986; Watt, 2009; Frydenberg, Matkin, & Center, 2007).

While there are some using the movement towards OERs to redesign the way courses are taught, and to increase student engagement levels in their classes, the predominant reasons behind the adoption of such an approach lie in an attempt to improve the quality of the materials available for students, and in the potential cost savings. "OER is a relatively new movement in education; educators and learners as well as learning institutions are driving its development. OER provides an alternative to the rising costs of education. For example, in some countries like South Africa, some educators and learners are tapping into OER as the only source for textbooks. OER provides an opportunity to try new ways of teaching and learning, many of which are more collaborative and participatory" (OER Commons, 2011). The potential of also revolutionizing the education of millions of students who live in rural poverty within the United States is also a compelling factor.

There is limited evidence, however, that the use of OER can be used to transform the learning process with categorical results. "Nevertheless, no existing research empirically validates the arguments that (1) open educational resources can save K–12 public schools money, or (2) that open educational resources can promote deeper learning for students in K–12 public schools" (Wiley, Hilton, Ellington, & Hall 2012). What can be determined, with little argument, is that the cost and availability of good quality textbooks to all students is prohibitive to many. "Curriculum materials are an important part of student learning and represent a significant, recurring cost to public schools" (Ansari, 2004). Cursory research conducted within the department of Teacher education estimated that a student completing a semester workload of 15-18 credit hours would be likely to spend approximately $1000 on required textbooks. Even with the emergence of a plethora of alternative and discount textbooks sites, including those who are willing to rent books to students rather than just sell them, students are frequently charged an average of $100 or more per textbook. These economic constraints also challenge institutions and organizations as much as they do individuals. Often schools and districts do not have the budget to fund a regular process of updating textbooks; as a result, teachers and students find themselves learning from a single copy of a textbook that is obviously out of date and using materials that are no longer relevant. Given that these same books must serve future students, they are often available in a "view only" format. "This preservation mindset translates into prohibitions on student highlighting or note taking in textbooks, which makes studying cumbersome and difficult. In other cases, students are forced to share books or go without them because their school or district cannot afford to purchase textbooks in a difficult budget year" (Orfield & Lee, 2005). It should also be noted, that in a modern era, where the immediacy and universality of resources is expected as an unconditional right for many, "clearly, textbook sharing arrangements prevent many students from being able to take books home for after-school study" (Wiley, Hilton, Ellington, & Hall 2012).

Certainly more research is necessary, but it should be remembered that OER has significant potential, especially in developing countries where affordability, availability, and ease of access all contribute to a diminished product. The concept of sharing all forms of learning in order to collaborate and maximize the flow of knowledge, experience and ideas, has the potential to build a foundation of open content online, for students, teachers, parents, and all other types of learner. This expansion of learning resources facilitates an exchange that can be comprehensive in nature and global in approach. Interestingly, it could be assumed that the benefit in learning from this collective intelligence would be viewed as superior to the musings of any one individual, and yet OERs still suffer the indignation of being categorized as substandard in many cases. In addition, "open education resources in the form of course content could become institutional recruiting tools, allowing prospective students the opportunity to examine classes offered and teaching modalities, and make informed choices about their academic path. Students presently enrolled at the institution may access important content and resources to enhance breadth and depth of learning. Former students may use open resources to review foundational concepts and ideas from classes they have successfully completed" (CAETL, 2011).

The Red Balloon Project

A driving force behind the department's widespread adoption of Open Educational Resources, was the practical and financial benefit for its students. It is also true, however, that taking such a risk resulted from an embedded environment of innovation within the University as a whole, and specifically within the College of Education and Technology. Prompted by the individual leadership of Dr. Edward H. Hammond (former President), and Dr. Robert F. Scott (former Dean, College of Education and Technology), Fort Hays State University has embraced the concepts behind the "Red Balloon Project," an initiation developed by The American Association of State Colleges and Universities (AASCU), focused on helping member institutions re-imagine undergraduate education.

The Red Balloon Project is a national initiative to re-imagine and then to redesign undergraduate education for the 21st century. Public colleges and universities are facing a complex set of challenges: transformational changes in technology, reductions in funding, shifting student demographics, growth of the private sector in higher education, demands for greater accountability, and more. The Red Balloon Project will help institutions restructure to respond to the rapidly changing circumstances of the new century. It challenges long-held practices of teaching and learning, institutional organization and structure, and the very notion of expertise…. The initiative is named the Red Balloon Project in honor of the Defense Advanced Research Projects Agency (DARPA), which sponsored a contest to find 10 red weather balloons randomly placed throughout the United States. The purpose of the contest was to explore the way that the Internet can use social networking tools to achieve an outcome. The contest winner, a team from MIT, found all 10 balloons in 8 hours and 52 minutes…. The goal of the Red Balloon Project is to collaboratively create models of undergraduate education that: Utilize educational technologies to better engage students in authentic learning experiences more aligned with the ways that knowledge is being generated, aggregated and disseminated in an age of networked knowledge. Additionally the project is designed to provide students with the knowledge, skills, and abilities they will need to become successful participants in careers, engaged citizens in a democracy, and thoughtful leaders in the global society of the 21st century (Mehaffy, n.d.).

This "Red Balloon" philosophy dovetails seamlessly with the fundamental mission of Fort Hays State University, which is to provide "accessible quality education to Kansas, the nation, and the world through an innovative community of teacher-scholars and professionals to develop engaged global citizen-leaders" (Fort Hays State University, n.d.b). With this mandate, the decision to move the department in a direction towards a variety of open educational resources rather than a single text or two as the foundation of its courses, was far easier to consider.

That being said, there can be little doubt that movement in this direction, though a somewhat natural "next step," was never likely to be an easy move for all concerned. Naturally, the department contains a full variety of professional characteristics, and therefore exhibits the full range of reaction to a change of this magnitude. For some, early adoption is within their DNA; thus the discussion of entering into such an exploration was second nature, though often resulted in a less detailed discussion of the finer points that can sometimes overlook important issues. Others take far longer to reach a level of comfort with such a transition.

As often-quoted Marilyn Ferguson suggests, "It's not so much that we're afraid of change, or so in love with the old ways, but it's that place in between that we fear. It's like being between trapezes; it's Linus when his blanket is in the dryer ... there's nothing to hold on to."

Rationale

There are several motivating factors for the move towards adopting open educational resources across the department. Naturally, the majority of these are founded upon practical benefits. These are not, however, a powerful enough force for such a deep-rooted change without the philosophical vision that must accompany them. The belief that teacher preparation programs must actually take the lead role in educational innovation is a critical component in developing a working environment that fosters creativity and risk-taking.

If our teacher education programs do not lead the way in redesigning the preparation of teachers for the future, then it will not matter if they have a Millennial mindset or not. Should we continue to prepare them to teach for an educational world that is removed from 21st century reality, in environments that are devoid of their natural technological habitats, then we must expect the same results that we are witnessing all too frequently today. Teachers who are ill-prepared to teach in a modern, fighting their natural technological instincts, and struggling to control and anesthetize disengaged classrooms of students (Holden & McGlinn, 2012).

The most obvious practical benefit of a widespread adoption of OER is the financial benefit to students. Fort Hays State University is known for its ability to serve a population of students where affordability is of high importance. Our student body primarily comes from small and rural communities in western Kansas, and the vast majority of them rely heavily upon financial aid to complete their schooling. A brief review of the textbook costs for our students, indicated that savings had the potential to be significant if they were no longer required to purchase textbooks. Five Department of Teacher Education courses that students often take together in one semester were chosen for the purposes of this cost analysis. When examining the price of all required texts in each of the five courses, the total equaled $837.34. On top of textbook costs, a student (on-campus, Kansas resident) enrolled in these five courses (15 credit hours) would pay $2179.05 in tuition for the semester, resulting in a combined payment of $3016.39. Eliminating the textbook price tag by using only OERs in every course saves that student nearly 28% every semester. This potential savings is a significant factor for many students, and if this is extrapolated over the full two years (72 credit hours) in the teacher education program, it amounts to a potential savings of more than $4,000.

In addition, a necessary part of preparing student teachers to go into the workplace is making them familiar with and able to use a variety of texts. The department's students come from districts all over the state and beyond, and so the ability to introduce them to the texts that they will actually use in their careers is extremely limited. In the past, this has involved using one predominant text for each course, and focusing upon a single approach to the pedagogy and content of most courses. Through the development of multiple resources for each course, not only are faculty exposing students to a variety of texts and expanding their experience with each, but also modeling an approach that they can use as teachers when they have their own classrooms.

Description of the Project

The Open Educational Resources initiative was an experiment designed to discern whether or not it would be possible to move the entire Department of Teacher Education at Fort Hays State University to the use of OERs for all courses taught in the department. The concept was to be able to provide courses that had shells built out in Blackboard (the university's exclusive learning management system for all faculty) that included all required readings and resources. For the sake of uniformity, OERs were defined using a hybrid of various definitions, first published in a 2011 report prepared for The William and Flora Hewlett Foundation: "Open Educational Resources (OER) are digitized educational resources that are freely available for use by educators and learners, without an accompanying need to pay royalties or license fees. The digitized resources may be shared via the Internet or using media such as disk-drives" (Victor & West 2011).

The project was developed using a simple design and incorporated all full-time faculty members within the department. Initially, some faculty and staff researched the best sources and materials to use, as well as the most efficient way for these resources to be collected and ultimately delivered to the students in the course shells. A small team of individuals completed this initial phase – those who were excited by the project and who were defined by their "early adopter" and "risk-taking" approach to new projects. The option to join this team was afforded all members of the department, though no type of persuasion was used to influence any faculty member.

This small team developed a sample Blackboard shell for one of the department courses, as well as compiled an extensive library of instructional materials (texts, videos, articles) that other faculty could pull from when preparing their own courses. The rationale behind this approach took into consideration the need to provide a relatively straightforward task to those other members of the department who may have more concerns when developing the open resources for their own courses. It was believed that creating some sort of structure or system of implementation would help diminish anxiety levels and demonstrate a good example that others might follow.

Each member of the department was given a full spring semester and the following summer to find their own course resources, and each was allowed to select both the number and type of courses for which they compiled OER materials. At the same time, any faculty member who preferred not to be a part of the OER procurement was allowed to "opt out" of the process altogether; though it was made clear that they would not be allowed to decline to teach the courses using OERs. Interestingly, though there were faculty members who were clearly less comfortable with the experiment, only one elected to opt-out of the project.

The initial team developed multiple sets of resources for faculty to use, as well as a sample course shell with several units built using OERs. Professional development sessions were conducted for faculty to walk them through the procedures surrounding copyright laws, the process of how to find the best resources, and the best use of university resources – especially the FHSU Forsyth Library digital collections. Faculty members were invited to join a department-wide Google Community specifically designed to maximize faculty collaboration, integration of effort, and the sharing of information and resources found by others. This community was continuously updated throughout the process, and has since remained a vital foundation for most in the department. In addition to these resources, considerable efforts were made to provide faculty with copies of books that were restricted under copyright law, but that could be used, in part, within the constraints of the "fair use" doctrine of US Copyright Law Section 107. A library of books, specifically requested by faculty to teach their courses was collected and stored in a pdf format, wherever possible. Faculty members were given significant guidance regarding what might qualify as fair use, in order for these materials to be used without copyright infringement.

Beyond the suggested guidelines and the resources made available to them, faculty members were given no other constructive parameters regarding how they selected the OERs to be used in their courses, nor the manner in which they were to be used by students in the course. Even though the sample course was developed using a variety of resource material: texts, articles, multi media, this was not a requirement for the other course shells to be built out.

Critical Considerations

While the project is in its earliest stages, and the limitations of any conclusions drawn compromise any genuine validity, there are several critical considerations that can be identified from the process of creating and developing OERs across an entire department. This project, in its very design, moves well beyond the early adopters and innovative souls who might cause the observational data to appear more positive than it actually is. Even in its infancy, the project has highlighted several factors that should be taken into account by anyone interested in replicating it in any way. As with any innovation, genuine and widespread success is dependent upon a paradigm shift of those who are being asked to use it. By its very nature, change disturbs the equilibrium of those that it impacts, and this project is no exception. For many in the department, the journey towards accepting that OERs can be used without negatively impacting the quality of the sources used is a long one. Moreover, developing the belief that such an approach would improve the academic quality of the resources offered has met with a stern (yet passive) resistance from some. Without such a paradigm shift, it is highly unlikely that the experiment will be fully successful for several reasons, but none more prevalent than the fact that the production of high quality and relevant OERs is in no way easy and takes considerable time and effort.

The best OERs developed for higher education consist of multiple and varied resources, and therefore a well-defined and firmly understood grasp of copyright law is very important. Most obviously this is to protect the individual (both the individual who owns the property, and the one who seeks to use it), as well as the institution, though it also plays a key role in ensuring that the resources are both varied and many in number. The whole premise of copyright is to "grant the creator of an original work exclusive rights to its use and distribution, usually for a limited time, with the intention of enabling the creator to receive compensation for their intellectual effort" (Wikipedia 2009), and so in following it closely, colleagues are required to present students with little more than a précis of relevant thoughts surrounding a concept.

Although the library of open license digital textbooks that are complete is growing rapidly, the selection is still relatively narrow. Thus OER developers are forced to blend the best of many types of resources, and in doing so expose their students to a body of work that benefits from the collective intelligence of several minds.

Despite the fact that the development of courses using OERs has the potential to positively impact a student's learning experience, there is some merit to the argument that designing courses using only "open source" materials risks greatly diminishing the quality of the course content. Indeed, the need to maintain a high level of quality control appears to be a critical factor for a project of this kind. Perhaps, understandably, the average scholar has far more skepticism regarding an open educational resource than a traditionally copyrighted and published textbook, and there an increased level of scrutiny should be expected when using them. Such skepticism and scrutiny requires an even higher standard of scholarship from the OER than might normally be expected. Though this expectation might seem unjust to some, it can also serve as a positive motivating factor for OER supporters, and increased quality can never really be seen as a bad thing!

What is not contended in any way, regardless of personal comfort levels with OER, is the fact that while the development process might not be terribly complex in terms of the abilities required of the faculty member to build the OER course shell, it is very time consuming. This factor is a significant deterrent to those who might begin such an undertaking, and can be demoralizing to the point of causing a faculty member to question its worth if it is done properly. Naturally, this process only need take place once in this depth, as subsequent updates can be upgrades and adaptations to the original OER course shell. The process is necessarily a continuous one, founded on the premise that using OERs facilitates an ongoing and dynamic approach to instruction, giving access to a full variety of the most current sources and materials available in each given discipline. When considering the possibility of using an OER approach, it cannot be stressed enough the amount of quality lead time required to successfully build out the courses, as well as the potential financial subsidy that might be necessary in order to adequately compensate faculty for their time.

It is not just time, however, that the faculty need in order to successfully navigate courses taught using OER materials. They will also need to have at least a reasonable amount of experience with technology and will certainly need a fundamental comfort with the basic programs they are likely to use. This will almost certainly include the use of software and programs such as Adobe, Microsoft, and course management systems (such as Blackboard or Google Classroom). Faculty will also need to be able to navigate within those software and programs, completing normal functions such as downloading and converting files, merging and dissecting files, linking files and other resources, and similar procedures. These seemingly basic technology competencies are a critical component in the successful development of courses embedded with OERs, and while it may be possible for someone to succeed without them, it will make the experience far more cumbersome, and this again can significantly impact motivation and ultimate success. Taking the time to learn the technology while at the same time learning how to put together an OER course shell is a combination that for most is likely to be too much to accomplish at one time. Finding faculty who already have a high comfort level with the technology makes a big difference to the success potential.

The presentation of the materials and resources used for the course OER is another important consideration. Given the ease of a single text, and the natural ability for students to navigate the information within them almost subconsciously, any move towards a more complex system will create varying degrees of discomfort. This applies to more than just students, as faculty also have learned to navigate a single text with equal ease. Truthfully, little is convenient or easy about the transition to a course taught using OERs, and the commitment to follow through to the conclusion of the process is fraught with challenges to confidence, comfort and capability. Faculty who are more adventurous in their approach and more innovative by nature will, as always, be the early adopters, especially if they are digital natives. They will not be the majority, however; thus, a strategic approach must be taken by institutions that seek to nurture an environment that encourages this type of innovation.

Future Implications

The future impact of OER is unclear. Indeed, just reading the reaction following the recent 2014 Knewton Symposium's OER Impact Panel discussion, any independent observer can be forgiven for believing that while the future might be uncertain, it is likely to be polarizing. Like any significant disruption of established protocol, until a consensus of vision can be established, future progress brings with it further turbulence and lies at the heart of the success of future OER initiatives.

Vision and structure have become key elements to the OER initiative as it presently exists within the department. One of the most apparent observations for us has been that a successful adoption of this philosophy requires the detailed preparation of those who have been asked to participate. While this has been relatively manageable for those who come to the campus each day, it has been far more difficult to successfully implement with the many adjunct professors who teach for the university each semester. These professionals are a critical element of the department's success, and so is keeping them informed, helping them plan, and convincing them of the benefits of using OERs. This will need to be addressed should the project persist on a large scale, though the best way to accomplished it is yet to be determined.

Naturally, the most significant paradigm shift that needs to take place when OERs replace traditional textbooks, is the role of the text and the companies and organizations that have previously profited. Certainly the savings for students is a compelling argument for an initiative of this sort, but it must be remembered that this is not a universal savings – when one party profits, naturally another must pay the price. In higher education, it is not simply the publishing companies that stand to lose considerable income, but also the bookstores and even student organizations, all of which benefit from the present system. As we have moved forward with the OER initiative, we have had to open dialog with various groups to inform them of our intent and then begin discussing how we might find a winning outcome for all concerned. This has become a delicate situation at times, and one that cannot be ignored. For example, many bookstores and publishing companies are strong supporters of various student scholarship funds, and if there is a significant negative impact upon overall revenue for the bookstore, it stands to reason that this would be reflected in the funds available for such contributions. This indirectly leads to a *de facto* situation arising where the savings in book fees is shared with all students at the expense of scholarships for those who might need financial assistance the most. Unintended consequences similar to this must be researched and overcome if the future of OER is to be completely successful.

At the same time, further discussion is required about how textbook companies can best participate and benefit from partnering with institutions in their quest to develop open courses. This will require a reinvention of the role previously played and is difficult to imagine without a comprehensive restructuring of the affordability of the textbook industry as a whole. With the possibility of such large financial losses, this will require a creative and certainly "out of the box" set of solutions if it is to work well – a transition that would do well to learn from the manner in which the music industry has transformed itself over the past few years. Focus will need to be placed on how to manage and contribute to the myriad of education resources available to students rather than to continue to subdue them. It is only when this conversation takes hold that genuine progress will be made, and a winning solution for all constituent groups might be found.

A fundamental conclusion of several studies involving the lessons learned from the use of OERs, including this case study, is that the course instructors need to be prepared to use a far more blended approach to their teaching if the resources are to be maximized. Again, this has different implications for a department that has both full-time and adjunct professors teaching courses – and requires a different approach. Adding to the depth of the problem is the fact that professors working at institutions of higher education have traditionally enjoyed significant autonomy in both the content of their courses and the manner in which they are taught. This paradigm might be the most challenging to change, as it is deep-rooted and personal in nature. This mind shift, however, is the key to the successful use of OERs in courses and, as with any educational innovation, will only ever be as powerful in the learning process as the teacher believes it can be.

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