Open Educational Resources

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Utah Valley University Library
Question:

Impact and uses of Open Educational Resources (OER) in universities.

Definition:

“Open Educational Resources are teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution” (Hatzipanagos & Gregson, 2015, p.98).

Executive Summary:

Open Educational Resources (OER) have become a topic of conversation at universities throughout the world. There are several noteworthy OER initiatives here in the state of Utah and numerous throughout the United States. Highlighted within in this literature review are discussions of specific programs and general conversations about openness in Higher Education. Though widespread adoption of OER programs has been relatively slow, their potential is seen as transformative. “The potential for open educational resources (OER) to transform the global educational landscape is immense. OER have emerged as one of the most powerful resources to transverse the global education landscape (along with the World Wide Web and the Internet) in the past century. Many advocates envision OER as a catalyst for bridging the digital divide, leveling the educational playing field between developing and developed countries and challenging the restrictive sanctions imposed on open content by proprietary providers and licensing vendors” (Olcott, 2012, p. 283). There is no single answer for universities, but openness is the goal.

“The potential of the OER movement to transform education practices has not been realised, largely because of a lack of focus on the policies and practices required to promote the concept of openness within higher education institutions” (Murphy, 2013, p. 204). For OER initiatives to be efficacious they need institutional support and grassroots adoption. “OER will flourish when bottom-up grassroots OER development takes place in an environment supported top-down by policy. Government support for OER can happen at the policy and guidelines level without any additional funding” (Stacey, 2013, p. 69). Institutional support is not about a particular program, but about creating an environment that
supports openness at the highest levels. “This means implementing a pro-OER policy making use of available OER whenever possible, conducting searches for OER before considering commercial resources, and supporting a pro-OER environment within the institution. Further, it could mean changing the perspective of course development teams from course building to course assembly, thereby including course assembly as part of the “creative” course development process” (McKerlich, Ives, & McGreal, 2013, p. 100).

Much of the literature focuses on the changing dynamics of higher education, and encourages universities to become involved in OER to maintain prominence and better serve their communities.

If institutions want to exert a significant influence on the direction of higher education, they will likely need to become open service providers in order to maintain their central positions of influence. An institutional commitment to openness will be the ante necessary to sit at the innovation table...No single response to the changes in the supersystem of higher education can successfully address every institution’s situation. However, every institution must begin addressing openness as an organizational value if it desires to both remain relevant to its learners and to contribute to the positive advancement of the field of higher education” (Wiley & Hilton, 2009, p. 13 & 14).

The dynamic has changed because expectations have changed, opportunities have changed, and demand for higher education is at an all-time high. "Education demand far exceeds supply and all public governments are seeking ways to provide more and better education for more people. The biggest potential for immediate gain is to adopt a policy that publicly funded education materials be openly licensed and available to the public that funded them. Publicly funded educational resources would become open educational resources by default” (Stacey, 2013, p. 70).

Throughout the literature the advantages of OER are enumerated. “Six incentives for institutions to become involved as a provider of OER that can be summarised as (1) sharing knowledge is a good thing in itself; (2) it increases the value of existing investment of public money; (3) it can cut costs and improve quality; (4) it can be good for public relations; (5) it provides a chance to explore new global business models; and (6)
open sharing will stimulate innovation” (Lane & McAndrew, 2010, p. 955). Not only will institutions benefit, but faculty and students will be presented with new opportunities. “A benefit for both students and instructors alike is the fact that OER are materials that are much more malleable than traditional, print-based materials produced by publishers. Specifically, the creators of OER often allow their work to be remixed and adapted by other instructors for their specific classroom context(s) via unique licensing alternatives (e.g., Creative Commons)” (Thoms & Thoms, 2015, p. 139). OER provides benefits that cannot be provided by traditional resources, because OER can be manipulated and revised to fit the needs of any class. “Because any materials used or produced are readily revised, remixed, reused, and redistributed at the campus level, student and faculty perceptions can be easily leveraged to provide real, meaningful improvement of materials for subsequent iterations of the course. The same questions asked of traditional textbooks, in contrast, would by necessity be purely academic, since copyright restrictions would prohibit faculty from making substantive changes to those materials” (Hilton, Gaudet, Clark, Robinson, & Wiley, 2013, p. 47-48).

Limitations exist for OER as well. Without sufficient organizational support, time for curriculum building, and training, it is difficult to institutionalize the adoption of OER. “However, the main, often repeated perceived barrier in discussions was a lack of staff development to familiarise academics with the nature and opportunities of OERs and time to search and explore repositories of OERs for suitable learning and teaching resources” (Hatzipanagos & Gregson, 2015, p. 103). One of the main barriers for faculty is their already busy schedules. “Either way, this finding has at least one important implication for future OER initiatives: despite the many clear advantages of OER, obtaining instructor buy-in could be hindered by the reality of increased preparation time” (Bliss, Robinson, Hilton, & Wiley, 2013, p. 16). Stipends, sabbaticals, and smaller teaching loads are just some of the ways that institutions help faculty build OER based curriculum.

There are many ways that universities can become involved in OER. This usually goes through a process of individuals or a department first adopting OER resources, and then gaining the confidence to adapt the resources that they are using, and finally creating and sharing resources of their own. It is always essential to remember that the goal of OER is to create greater openness and more opportunities for students and faculty. “To maximise the openness of an OER, the OER should be licensed in such a way that it can be reused, redistributed, revised and
remixed. If your goal is to promote revision and remixing, use the least restrictive license possible (such as the Creative Commons Attribution (‘BY’) license)” (Hilton, Wiley, Stein, & Johnson, 2010, p. 42). For OER to be adopted, institutions have to create an environment that values openness, supports faculty initiatives, and allows individuals to experiment with new ideas.

**Keywords:**

OER, Open education resources, college, universit*, higher education, cost, retention, value

(OER OR “open education resource”) AND (college OR universit* OR higher education)

**Peer-reviewed Articles:**

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<tr>
<th>Citation</th>
<th>Abstract</th>
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<th>Limitations</th>
<th>Conclusions</th>
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<tr>
<td>1. Abeywardena, I. S., Chan, C. S., &amp; Tham, C. Y. (2013). OERScout technology framework: A novel approach to open educational resources search. <em>International Review of Research in Open and Distance Learning, 14</em>(4), 214-237. Retrieved from ERIC</td>
<td>The open educational resources (OER) movement has gained momentum in the past few years. With this new drive towards making knowledge open and accessible, a large number of OER repositories have been established and made available online throughout the world. However, the inability of existing search engines such as Google, Yahoo!, and Bing to effectively</td>
<td><a href="http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&amp;pr=on&amp;ft=on&amp;ff1=eduHigher+Education&amp;pg=2&amp;id=EJ1017521">http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&amp;pr=on&amp;ft=on&amp;ff1=eduHigher+Education&amp;pg=2&amp;id=EJ1017521</a></td>
<td>The technology framework presented in the paper is limited by few resources currently indexed and also that it can only be run on a Windows PC.</td>
<td>-- “57.4% of the academics feel the lack of ability to locate specific and relevant resources using existing search engines to be a serious inhibitor of the use of OER.” (p. 215) -- “Unfortunately, according to the study, only 43.2% of the academics use native search facilities of OER repositories. On the other hand, generic search</td>
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search for useful OER which are of acceptable academic standard for teaching purposes is a major factor contributing to the slow uptake of the entire movement. As a major step towards solving this issue, this paper proposes "OERScout," a technology framework based on text mining solutions. The objectives of our work are to (i) develop a technology framework which will parametrically measure the usefulness of an OER for a particular academic purpose based on the openness, accessibility, and relevance attributes; and (ii) provide academics with a mechanism to locate OER which are of an acceptable academic standard. From our user tests, we have identified that OERScout is a sound solution for effectively zeroing in on OER which can be readily used for teaching and learning.

engines such as Google, Yahoo!, and Bing are found to be used by 96.9% of the academics for OER search.” (p. 215)

-- “As such, it can be seen that OERScout is a more focused and dynamic system for effectively searching for desirable OER. This becomes one of the major benefits to ODL practitioners as the system spares the user from conducting repeated keyword searches in OER repositories to identify suitable material for use.” (p. 229)

-- “It also allows users to quickly zero in on OER suitable for their needs without reading through all the search results returned by a generic search mechanism such as Google.” (p. 229)

-- Key Features of OERScout:
1) Provides a centralised mechanism to search for
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<td>2) Searches for only the most desirable resources for academic purposes.</td>
<td>3) Effectively locates and presents resources from the distributed repositories.</td>
<td>4) Provides a dynamic mechanism instead of a static list of search results which can be used to zero in on the required resources.</td>
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<td>5) Uses autonomously identified keywords for locating the most relevant resources.</td>
<td>6) Uniformly annotates resources with the relevant keywords to facilitate accurate searching.</td>
<td>7) Removes human error in the annotation of keywords.</td>
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(Table 6, p. 230)

-- “The users also felt that the licensing scheme needs to be explained in non technical terms such as “can reuse, redistribute, revise and
remix even commercially” instead of “CCBY”.” (p. 231)

-- The benefits of OERScout to content creators include
(1) Elimination of the need for manually annotating resources with metadata used in search.
(2) Elimination of the need for publicising the availability of a repository and the need for native search mechanisms.  (3) Reach of material to a wider audience.” (p. 232)

-- “It is our intention to make OERScout available as a public service via www.oerscout.org which would allow academics to search desirable OER for their specific teaching and learning needs. We also intend to transfer the system onto a free and open source software (FOSS) platform in the spirit of openness and accessibility.” (p. 232)

This paper presents the rationale, common practices, challenges, and some personal anecdotes from a journal editor on the production, use, and re-use of peer-reviewed scholarly articles as open educational resources (OER). The scholarly and professional discourse related to open educational resources has largely focused on open learning objects, courseware, and textbooks. However, especially in graduate education, articles published in scholarly journals are often a major component of the course content in formal education. In addition, open access journal articles are critical to expanding access to knowledge by scholars in the developing world and in fostering citizen science, by which everyone has access to the latest academic


--Background article by a firm support of Open Access

“Although the vast majority of open access scholarly works are published on the Web, scholarly works can be published and distributed in any medium” (para. 2).-- The two paths of Open Access (OA) as described by Harnad are explained including the “golden road” which has authors publishing their work directly in an open access journal, and a “green road” that lets authors publish work in a traditional journal but retains some rights for open/institutional access (para. 6).

-- A brief overview of different rationale for OA including
1. Citizen science
2. Open science
3. Expanding access
4. Special needs of developing countries

--”The normal academic publishing model for scholarly work sees the
information and research results. In this article, I highlight some of the challenges, economic models, and evidence for quality of open access journal content and look at new affordances provided by the Net for enhanced functionality, access, and distribution.

| academic submitting his work to a publisher (at no charge to the publisher), the article being reviewed by a team of volunteer editors and reviewers (again, at no charge to the publisher), and then the author (or his or her educational institution) having to pay large fees to access the published work. In the UK the cost of these journal subscriptions now represents 65% of the total library budget (“Academic publishing: Of goats and headaches,” 2011). Given the real work of copyediting and electronic distribution, a case can be made for a fair return on investment and profit for scholarly publishers. However, the journal publishing sectors of the major publishers are their most profitable divisions. For example, the world’s largest publisher Elsevier made £724m ($1.1 billion) on
revenues of £2 billion—an operating-profit margin of 36%” (http://www.economist.com/node/18744177)” (para. 18).

--Free for user does not guarantee free to produce. There are a few popular routes to mitigate the cost of production such as:

1. Charging the authors a publication fee
2. Sponsorship from a different funding source
3. Additional products or services sold
4. Advertising
5. Fundraising (para. 20).

| 3. Bliss, T. J., Robinson, T. J., Hilton, J., & Wiley, D. A. (2013). An OER coup: College teacher and student perceptions of open educational resources. Journal of Interactive Media in | Despite increased development and dissemination, there has been very little empirical research on Open Educational Resources (OER). Teachers and students involved in a | http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1007226&site=eds-live | There are a number of limitations to this study, including the study's reliance on questionnaire data. The results are only as accurate as the perceptions of those being surveyed. | -- “Over 20 percent of teachers described the advantages of OER in terms of student access to materials at the very beginning of the course. For example, one teacher wrote, “Having the book
A large-scale OER initiative at eight community colleges across the United States were given a detailed questionnaire aimed at uncovering their perceptions of the cost, outcomes, uses and perceptions of quality of the OER used in their courses. Teachers and students alike reported significant cost savings and various pedagogical and learning impacts due to the implementation of OER in the classroom. In addition, most students and teachers perceived their OER to be at least equal in quality to traditional textbooks they had used in the past. Implications for further research are discussed.

A second general weakness of this study is that student and teacher perceptions about the use and quality of OER were likely coloured by their more general perceptions about the use of technology in education.

immediately available online helps the class progress faster." And another teacher described how his students "are prepared from the beginning of class." (p. 9)

-- “A few teachers discussed other advantages of continuous online access to materials, including more student interest and engagement. One teacher described this advantage, saying, "Students are better prepared as they have access to the reading materials at little or no cost. Students are more engaged and have more interesting questions." Another teacher explained how better access to resources affected her class instruction: "I am able to refer to material knowing that all students will have access to the same material." (p. 9)
Another teacher noticed a change in practice, but did not attribute this to the OER text: "No change due to the textbook. Lots of change due to my growth as a teacher." (p. 9 & 10)

"Several teachers mentioned technology as a barrier to instruction and learning: "I spend a lot more time helping students access and navigate the website. I refer to posts I make to the website during class on a frequent basis, mainly because I am not convinced they are using the links I give them." Even more time consuming, one teacher reported having to "modify several assignments in order to help students without access to [the] Internet or [who] have problems accessing materials through the net." (p. 10)
One student wrote that he found himself "using [it] a lot and learning better than before." Another student noted that the OER text "helped me to study and learn what I needed to learn within the course." Of particular note, a learning-disabled student wrote, "I have a learning disability and it seemed like I am doing better in my grades reading the texts online than in my [printed] books." (p. 11)

Over a quarter of student comments about what made their open texts better than traditional texts centered on convenient access. One student wrote that "it's easier when [my book] is online. I don't have to carry a big book. I could just carry my laptop and I have all the materials I need." (p. 15)

One of the primary goals of Project
Kaleidoscope was to dramatically decrease the cost students pay for textbooks. Both teachers and students in the study perceived that textbook costs were reduced by nearly 80 percent.” (p. 16)

“Either way, this finding has at least one important implication for future OER initiatives: despite the many clear advantages of OER, obtaining instructor buy-in could be hindered by the reality of increased preparation time.” (p. 16)

| 4. Bliss, T. J., Hilton, J., Wiley, D., & Thanos, K. (2013). The cost and quality of open textbooks: Perceptions of community college faculty and students. *First Monday, 18*(1). doi:10.5210/fm.v18i1.3972. | Proponents of open educational resources (OER) claim that significant cost savings are possible when open textbooks displace traditional textbooks in the college classroom. We investigated student and faculty perceptions of OER used in a community college context. Over 125 | [http://firstmonday.org/ojs/index.php/fm/article/view/3972/3383](http://firstmonday.org/ojs/index.php/fm/article/view/3972/3383) | --Small sample size of instructors responding | Authors designed “Project Kaleidoscope (PK) brings together eight community colleges serving predominantly at-risk students to create course designs and textbooks using OER...These partners collectively serve over 100,000 students per year, 69 percent of which are designated as
students and 11 faculty from seven colleges responded to an online questionnaire about the cost and quality of the open textbooks used in their classrooms. Results showed that the majority of students and faculty had a positive experience using the open textbooks, appreciated the lower costs, and perceived the texts as being of high quality. The potential implications for OER initiatives at the college level seem large. If primary instructional materials can in fact be made available to students at no or very low cost, without harming learning outcomes, there appears to be a significant opportunity for disruption and innovation in higher education.

“at–risk” by each college’s internal evaluation. During Fall Term 2011, PK affected nearly 2,000 students across 40 teachers, with expansion planned in subsequent terms” (para. 7).

“PK is unique in its focus on supporting institutional adoption of OER, rather than on the creation of new resources. Faculty teams from across the colleges identify and evaluate existing OER for incorporation in the Kaleidoscope course designs and textbook development. The emphasis on open resources is driven by two project objectives: (a) eliminating textbook costs as an obstacle to the success of low-income students; and, (b) allowing faculty greater flexibility in sharing and improving the course resources.” (para. 8).

--Of the surveyed
instructors the study found that “No instructor indicated spending less time, and most (82 percent) felt they spent *somewhat more or much more* time preparing to teach in Fall 2011 than in previous semesters...In our study, 90 percent of instructors reported that their students were *equally prepared* (60 percent) or *more prepared* (30 percent) than were students in previous semesters. Only one instructor felt that students were less prepared. Perhaps the strongest endorsement of open textbooks is that all 11 instructors indicated that they would be *very likely* to use open texts in future courses.” (para. 14-16).

--Of the students surveyed 70% said they did not purchase texts for the PK classes. Of the remaining students they spent significantly less on
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<td>The free and open publication of course materials (OpenCourseWare or OCW) was initially undertaken by Massachusetts Institute of Technology (MIT) and other universities primarily to share educational resources among educators (Abelson, 2007). OCW, however, and more in general open educational</td>
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<td>The study concludes that OCW can affect student recruitment and participation but does not examine how or why.</td>
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<td>-- “Findings from OUNL surveys further the case that OER / OCW supports informal learners in planning a return to formal education.”</td>
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resources (OER), have also provided well-documented opportunities for all learners, including the so-called "informal learners" and "independent learners" (Carson, 2005; Mulder, 2006, p. 35). Universities have also increasingly documented clear benefits for specific target groups such as secondary education students and lifelong learners seeking to enter formal postsecondary education programs. In addition to benefitting learners, OCW publication has benefitted the publishing institutions themselves by providing recruiting advantages. Finally enrollment figures from some institutions indicate that even in the case of the free and open publication of materials from online programs, OCW does not negatively affect enrollment. This paper reviews evaluation (p. 24) -- “One response demonstrates how OCW resources can support a transition from one field to another: “advance beyond prior study, as my B.A. was not math-related, but I wish to pursue M.S. in Mathematics.” Another response indicates how OCW can provide a “leg up” on learning, so that students are more comfortable with the materials they will encounter in formal study: “learning the material on my own so the concepts will be easier to grasp when I enter a formal course.” (p. 25) -- “OCW projects demonstrate fairly consistent influence on student school choice of between 10-30% of students who have viewed the OCW sites. These figures indicate a
The role of distance education is shifting. Traditionally distance education was limited in the number of people served because of production, reproduction, and distribution costs. Today, while it still costs the university time and money to produce a course, technology has made it such that reproduction costs are almost non-existent. This shift has significant implications, and allows distance educators to play an important role in the fulfillment of the promise of the right to universal education. At little or no 

---An overview of the history of OpencourseWare and Creative commons rather than a study or research project
--Some information about how other universities have implemented OCW or OER, but it does not go into depth as to how to frame OER with distance education

---OpenCourse Ware from MIT developed more than 50 courses from MIT to be free and sharable for students, staff, and researchers (p. 2)
--The OpenCourseWare concept sprung in part from Open licensing software as an inspiration (p. 2).
-- As of November 2007, over 160 higher education institutions and affiliated organizations who have committed to begin an OCW website and openly share 10 courses. The 10 course commitment is a requirement to be able to join the OpenCourseWare


| cost, universities can make their content available to millions. This content has the potential to substantially improve the quality of life of learners around the world. New distance education technologies, such as OpenCourseWares, act as enablers to achieving the universal right to education. These technologies, and the associated changes in the cost of providing access to education, change distance education's role from one of classroom alternative to one of social transformer. | Consortium, an organization established to assist the OCW movement (p. 3). --"Other institutions are sharing their OER content, though not calling what they do OpenCourseWare. Examples of other types of OERs include the iTunes audio lecture series from the University of California at Berkley. Another is the Connexions project at Rice University, which posts educational content online, though not always in course format" (p. 5) --"There are thousands of producers involved in the open education movement, though many of them do it without realizing it. Every time material is created and licensed under a Creative Commons (see http://creativecommons.org) or other "open" license, there is potential for that material to be |
used in an educational setting. (p. 6)
---“Ninety-six percent of MIT students using the MIT OCW site reported it has had a positive or extremely positive impact on their student experience” (p. 8)
---“As with any institutional initiative, OCW can be difficult to fund. To date, private foundations such as the William and Flora Hewlett Foundation and the Andrew W. Mellon Foundation have provided the bulk of the funding for OCW initiatives. There is only so much grant money to go around, however. Costs associated with OCW course development include software, hardware, hosting costs, and human resources” (p. 9).

| de Langen, F. (2011). There is no business model for open educational resources: A | The economic proverb "There is no such thing such as a free lunch" applies also to open | http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ9 | No new findings. Article is just a literature review. Some of the cited pieces are somewhat dated. | -- Arguments for OER: “1. The ‘public good’ motive: this is an
In recent years, several authors have used revenue models and business models to analyse the different sources of possible funding for OER. In this article the business models of Osterwalder and Chesbrough are combined with research on the motives of the participants of OER to analyse possible funding models. If the motives of governments (knowledge economy), educational institutions (efficiency, marketing), individual producers (reputation, academic interests) and users (intermediary educational products, learning) are combined, it is shown that the only long-term sustainable independent business model is based on subsidies. However, this conclusion depends both on the definition of openness (in the sense of ideological motive).

2. The ‘efficiency’ motive: both internal and external arguments. By stimulating OER, organisations feel that this will improve internal organisation and the quality of teaching.

3. The ‘marketing’ motive: offering OER can be used to attract more students and funding because of the publicity generated.” (p. 211)

-- “Educational sector arguments: OER can be used to increase the quality of national education, raise the cost-efficiency of the educational sector and stimulate discussion about new educational models.

National arguments: by increasing access to education and knowledge, by opening up the educational sector, OER can have a positive

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<th>business model approach. Open Learning, 26(3), 209-222. doi: <a href="http://dx.doi.org/10.1080/02680513.2011.611683">http://dx.doi.org/10.1080/02680513.2011.611683</a></th>
<th>educational resources (OER). In this article the business models of Osterwalder and Chesbrough are combined with research on the motives of the participants of OER to analyse possible funding models. If the motives of governments (knowledge economy), educational institutions (efficiency, marketing), individual producers (reputation, academic interests) and users (intermediary educational products, learning) are combined, it is shown that the only long-term sustainable independent business model is based on subsidies. However, this conclusion depends both on the definition of openness (in the sense of ideological motive).</th>
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at no cost) and on motives. More research on both aspects could alter these conclusions.

influence on the emergence of a knowledge economy, increase productivity and improve social cohesion.” (p. 212)

-- Who uses OER? "1. Institutionalised users: educators, using the OER in their own teachings. This seems to be the largest group.
2. Students and self-learners, who want to further their knowledge.” (p. 216)

-- "The first revenue model assumes that the organisation is subsidised by the government. In this view, it is not the users of OER who are the clients of an educational organisation, but the suppliers of capital (i.e. governments) whose motives have to be taken into account. This model should therefore align the motives for government support of OER to the business model of the
organisation, and the organisation should provide evidence of:
1. Having unique resources to improve national learning.
2. Having unique processes, which could be shared by other educational organisations, improving the efficiency of the educational sector.
3. Having a unique offering of learning objects and learning units, which both improve the quality of national education and/or raise the level of education of the labour force.” (p. 217)

-- “The second model is the educational hub, an organisation that acts as a central portal for OER, where partners pay a hosting fee to offer their materials to a broader public. The central question would be: what is the value offered to these partners? The motive for offering their
OER through a paid channel could be:
1. Having unique resources, such as additional services, advice, tools and formats provided by the hosting organisation.
2. Having unique processes – for example (a cost motive), because sharing a hosting system could be more efficient than maintaining one for oneself.
3. Having a unique offering as an aspect of publicity to demonstrate the good reputation and impartiality of the hosting organisation.” (p. 218)

-- "Essential for an OER project is that the educational resources are offered for a long period. Developing and exploiting an OER system will involve costs, even if it is only ICT maintenance. So, in addition to the comparative advantage, there also will be the question of the
It is therefore important for a business case both to prove the added value of the OER arrangement for the organisation as a whole, and to show the amount of alignment with the strategy of the organisation as translated in the overall business model. (p. 219)


As the cost of higher education rises resulting in greater debt and reduced accessibility for students, ways to reduce these costs become critical. One potential solution is to address the high cost of textbooks. An alternative to the use of traditional textbooks in a class is the adoption of open textbooks. To determine the viability of open textbooks, one hundred and forty eight

---Relies on the assumption that students are digital natives and therefore comfortable on an online medium without support for that claim

--- “report on the perceptions of open textbooks by one hundred and forty eight upper-level business students enrolled in a Management Information Systems (MIS) class that used an open textbook published by Flat World Knowledge ” (p. 69).
--- “The students reported that on average they spent $430 per term on textbooks” (p. 70).
---”Of the one hundred
students who used an open textbook in an upper level Management Information Systems class were surveyed about their experience. This paper reports the results from the survey, addresses some concerns over the use of open textbooks and provides support for their place in the university curriculum. In general, there was satisfaction with the quality of the open textbook, the significant cost savings provided by using the open textbook versus a traditional textbook, the ease in accessing the open textbook online, and the overall experience with the open textbook. The findings provide support for those considering using open textbooks and relieve some of the concerns noted by faculty and students concerning the viability of this alternative to the traditional textbook.

and forty eight students in our sample, 120 (81%) read the open textbook online, 19 (13%) ordered a print version of the book, and 9 students printed parts of the book themselves” (p. 71) --91.2% of students felt that the OER textbook was of similar quality as a traditional textbook. --89.2% of students believe that an open textbook is comparable or an even better substitute for a traditional textbook. Several students commented that, especially because the text was customized to the course, they felt that the open textbook used in the course was as good as or even better than a traditional textbook. Students also stated that they often feel frustrated in their other classes because the material in textbooks assigned is only partially covered and they feel that they have
Discussion of the challenges faced by students and faculty members in the adoption of open textbooks is also provided.

This study reports findings from a year-long pilot study during which 991 students in 9 core courses in the Virginia State University School of Business replaced traditional textbooks with openly licensed books and other digital content. The university made a deliberate decision to use open textbooks that were copyrighted under the Creative Commons license. This decision was based on the accessibility and flexibility in the delivery of course content provided by open textbooks. More students accessed digital open textbooks than had previously purchased hard copies of textbooks. Higher grades were correlated with courses.


--Pilot study
--Limited ability to compare the same course over different semesters

-- “VSU faculty members were concerned because an internal survey reported that only 47% of students were purchasing textbooks for their courses. The most frequently cited explanation for not purchasing textbooks was affordability (p.1).

-- “On August 23, 2010 Virginia State University and Flat World Knowledge issued a joint press release announcing that the Reginald F. Lewis School of Business would utilize FWK’s in several of its courses. In addition to the free online textbooks, VSU agreed to pay a “seat license” per enrolled student that would allow students to freely access all of the associated supplementary materials.

Wasted money in purchasing the book. (p.71)
that used open textbooks. (such as flash cards, practice quizzes, audio files, etc.). Thus students were able to download content to e-readers, computers, mobile phones or even flash drives. Faculty members were able to provide chapters for download in their Blackboard accounts. Once downloaded, students could use all of these educational resources whether they were on or off line. All of these materials were free to students.” (p. 2)

-- Discusses the different file types students chose to download and what the benefits of the different file types are. The file types included PDF files, ePub and MOBI files, and MP3 files (p. 4)

--”Thus students in courses that used FWK textbooks tended to have higher grades and lower failing and withdrawal rates than those in
courses that did not use FWK texts. These results have statistical significance (Fall 2010: z-value = -3.636, p < 0.000, Spring 2011: z-value = -4.684, p < 0.000). As stated previously, because they are different courses, these data cannot be used to establish causality, but nevertheless provide an interesting correlation" (p. 7).

| 10. Gourley, B., & Lane, A. (2009). Re-invigorating openness at the open university: The role of open educational resources. *Open Learning, 24*(1), 57-65. Retrieved from ERIC | This paper describes the internal motivations and external drivers that led The Open University UK to enter the field of Open Educational Resources through its institution-wide OpenLearn initiative (www.open.ac.uk/openlearn). It also describes some of the emerging evidence of the impacts inside and outside the university. Through the rapid implementation and operation of the OpenLearn website, The Open University UK has | http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ830105&site=eds-live | Study is limited to the experience of one institution only. this institution is exclusively a distance learning institution. | -- “To date we have evidence from observations and surveys for the following benefits to individual learners who primarily engage with the LearningSpace study units: 1. A place for improving study skills. 2. The opportunity to sample higher education study before enrolling on a taught course. 3. A way of choosing an OU UK course on which to enrol. 4. A way to begin study of |
been able to better understand and promote openness through open and distance learning.

5. An opportunity to pursue in depth a topic that interests them, perhaps as an addition or enrichment to their formal courses.
6. A place to discuss topics and share knowledge and experiences with others.
7. A way to test their English-language skills.
8. A place to keep a formal record of their informal study.” (p. 59 & 60)

-- “The observed and reported benefits to lecturers or other educators of both the LearningSpace and the LabSpace are equally diverse but include:

1. Investigating the OU UK approach to teaching a particular topic.
2. Directly referring their students to a study unit
as additional reading or a set text for their face-to-face or online course.
3. Downloading units for incorporation into their own courses, whether online, blended or face-to-face.
4. Versioning and localising units for their own purposes and their own contexts (this includes translation).
5. Sharing their materials and ideas with other educators worldwide.
6. Collaborating with others in developing new OER.
7. Contributing to research into the effectiveness and uses made of OER. (p. 60)

11. Gurell, S., Kuo, Y., & Walker, A. (2010). The pedagogical enhancement of open education: An examination of problem-based learning. *International Review of Research in Open and Distance Learning, 11*(3), [Open education, as embodied in open educational resources (OER) and OpenCourseWare (OCW), has met and dealt with several key problems. The movement now has a critical mass of available](http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ913862&site=eds-live) Purely a literature review. No research was carried out assessing the implications of partnering PBL with OER.

-- “PBL is a particularly good fit with OER. PBL has a reasonable amount of empirical research. It is progressive in its alignment, yet it needs to draw on a range of resources, including both expert-centric and those
content. Leveraging no small amount of funding and associated development, open education has the tools to collect, disseminate, and support the discovery of open materials. Now that the foundation for openness has been laid, practitioners are experimenting with new kinds of education and pedagogies associated with open content (Weller, 2009; di Savoia, 2009). Problem-based learning is one of many progressive pedagogies that might be combined with open education. This paper defines problem-based learning in the context of open education. Unique challenges are presented and discussed alongside possible solutions, realistic limitations, and calls for implementation in the future to test validity.

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Criticism of PBL in OER: “Their argument is that strong guidance is necessary, especially for the learners who do not have enough background knowledge at the beginning of learning. In essence, this is about germane load. If learners are devoting a substantial portion of their mental capacity learning background material, they will have comparably less capacity for engaging in problem-solving and for learning the new material surrounding the problem at hand.” (p. 98)

“The combination of PBL and OER presents other unique challenges. In order for the free inquiry process to be meaningful, it is important that the problem solution be unknown to students. Yet if a PBL course were
| 12. Hatzipanagos, S., & Gregson, J. (2015). The role of open access and open educational resources: A distance learning perspective. *Electronic Journal of E-learning, 13*(2), 97-105. Retrieved from ERIC | The paper explores the role of Open Access (in licensing, publishing and sharing research data) and Open Educational Resources within Distance Education, with a focus on the context of the University of London International Programmes. We report on a case study where data were gathered from librarians and programme directors relating to existing practice around Open Access; the major constraints in using Open Educational Resources and the main resource implications, when adopting Open Educational Resources, were also investigated. Our aim was to (a) raise awareness and understanding of what is possible to achieve in | Study is limited to one institution only. | -- “The Open Access Spectrum:
- ‘Green’ open publishing repositories, which, for the most part, contain summary data about publications rather than full text or final drafts of publications, which their authors have posted before submitting the text to a journal. The elliptical information in summaries and the inclusion of drafts rather than the definitive final version that is published in the journal can be seen as limitations and are increasingly making the combination of green repositories and subscription publishing an unsatisfactory compromise to the Open Access movement.
higher education by embracing the Open Access movement (b) identify next steps and actions that could be taken to improve institutional use of Open Access materials, including Open Educational Resources, (c) examine the implications of such actions for Open Distance Learning and generally the higher education sector. Our investigation highlighted some opportunities and the findings resulted into some clear recommendations that emerged both for practitioners and for students in this area. There seems to be a clear synergy between the different but related movements of Open access and OERs as both have to address issues of ease of access, quality and visibility in order to become accepted in higher education.

- ‘Gold’ open publishing repositories, in which publication costs are paid before publication, allowing the publisher to permit wider distribution without damaging loss of revenue (Swan, 2010; Swan and Houghton, 2012). But the use of term ‘open publishing’ can be misleading, because it has been used to embrace rather different approaches. In some cases, ‘gold’ means up-front payment for limited distribution rights, i.e. a paper may be distributed but not reused in any way, including text or data mining, without further charges.

- Open Data – this is a broad area that allows reuse, revising, remixing and redistributing of data. These data can be freely used, reused and redistributed by anyone – subject only, at most, to the requirement to
respect an intellectual property sharing license, i.e. ideally to attribute and share alike.

- Open Educational Resources are teaching, learning or research materials that are in the public domain or released with an intellectual property license that allows for free use, adaptation, and distribution. Examples of OERs include: full programmes, programme modules, curricula, materials from teaching sessions in different formats, assessment resources: assignments from quizzes to exam papers to e-assessment, lab and classroom activities, pedagogical academic development materials, games and simulations.” - Open Development is about making information and data freely available and searchable, encouraging feedback, information
sharing, and accountability (Smith, and Reilly, 2014).”
(p. 98)

-- “The Institute of Development Studies is one of many institutions that now make Open Access materials available through an institutional repository Open Docs (2014), based upon an open sources repository application, the DSpace platform (DSpace, 2015).”
(p. 99)

-- “Newly introduced requirements to publish as Open Access conflict with some of the ways in which researchers are currently incentivised, recognised and rewarded. Both their intellectual property rights and desire to publish in the ‘top’ journals are affected, so compliance is an issue.”
(p. 99)

-- “Open Access brings changes to which some
researchers are resistant and others question whether the APC (Author Processing Costs) model that underpins Open Access publishing is another form of exploitation, which may make it relatively harder for authors in developing countries or non-established authors to publish their materials.

"The main perceived potential benefit of OERs is "improved learning" and less "saving on academic time to develop appropriate material/content". Overall they were positive about the existence of "many good resources", however they also
referred to the challenges of evaluating the quality of such resources before adoption.” (p. 101)

-- “However, the “volatile”, almost “touch and go” (attributes they used to describe OERs) ever changing nature of the key OER repositories made them question whether they represented a reliable source of teaching materials. As someone also commented: “...the world of OER is not static enough to make it meaningful other than a snapshot of that day...” (p. 102)

-- “However, the main, often repeated perceived barrier in discussions was a lack of staff development to familiarise academics with the nature and opportunities of OERs and time to search and explore repositories of OERs for suitable learning
and teaching resources. “ (p. 103)

-- “Our findings indicated that there seemed to be clear advantages of Open Access for open and distance learning environments that included:

- Many students (inc. in developing countries) becoming more digitally literate, and libraries ‘serving’ effectively people who are not physically present.

- Promoting digital resource access, availability and usage.

- Gaining more feedback and engagement with learners, who can collaborate on ongoing development of ideas and resources.

- Establishing and recognizing new ways to measure impact.

A significant movement in education concerns the use of open educational resources. By 'open' it is generally meant that the resource is available at no cost to others for adaptation and reuse in different contexts. However, 'open' is not a simple dichotomy; rather, there is a continuum of openness. We discuss four separate aspects of reuse and demonstrate how these describe different levels of openness. We discuss how the licensing and technical aspects of open educational resources affect the relative openness of an

|--------|-----------------------------------------------------------------------------------------------------------------|

Study is fairly old, dating back to 2010.

- Supporting more effective exploration of resources and data (where purchase is not needed.
- Enabling data mining by allowing simultaneous access to articles/digital resources.” (p. 103)

-- The ALMS Analysis: Access to editing tools? Level of expertise required to revise or remix? Meaningfully editable? Source-file access? (p. 41)

-- “Access to Editing Tools: When people try to revise OERs, one of the first questions they will need to ask is ‘What software do I use to edit this resource?’... For example, although Acrobat (.pdf) files can be opened with free software, they often cannot be edited or adapted using free software. Thus access to
open educational resource. Implications for those creating open educational resources are discussed.

editing tools is limited for PDF files compared with a file format like HTML.” (p. 41)

-- “Level of expertise required to revise or remix: Even if end-users have access to editing tools, if they need 100 hours of training to use the tool effectively then revising OERs that rely on those tools will probably be beyond their reach.” (p. 41)

-- “Meaningfully editable: Perhaps the classic example of OERs that are not meaningfully editable are scanned PDF documents.” (p. 42)

-- “Source-file access: A source file is the file that a programmer or developer edits and works with in order to produce a final product... In some cases, the source files used by the original developer are the same files that the end-user will...
interact with... In other cases, the file the developer edits and works on is compiled into a new file for distribution, and this file cannot be edited or altered... or those who want others to revise and remix their work, access to the source files should be provided.” (p.42)

-- “Before beginning to design a piece of instruction, consider the degree to which you want the content to be open. Do you want to permit reuse and redistribution only? Do you want others to be able to remix the content?” (p. 42)

-- “To maximise the openness of an OER, the OER should licensed in such a way that it can be reused, redistributed, revised and remixed. If your goal is to promote revision and remixing, use the least restrictive license possible (such as

An important element of open educational resources (OER) is the permission to use the materials in new ways, including revising and remixing them. Prior research has shown that the revision and remix rates for OER are relatively low. In this study we examined the extent to which the openly licensed "Flat World Knowledge" textbooks were being revised and remixed. We found that the levels of revision and remix were similar to those of other OER collections. We discuss the possible significance and implication of these findings.

The primary limitation of the current study is that we only had access to modifications made within FWK's editing program. Another limitation of this study is that it included only one collection of OER (those published by FWK).

-- "we found that the rates of revision and remix were relatively low. Only 7.5% of textbook adoptions over a two-year period were adoptions of custom books. This indicates that while the ability to revise and remix sounds exciting, the number of those who take advantage of this opportunity is relatively small." (p. 55)

-- "One tentative key finding of the study is that the easier it was to make a change, the more changes of that type were made. Of the different kinds of changes that can be made, the easiest to make is a deletion” (p. 55)

-- ”Another finding was that not only were deletions the most
common type of revision made, but they were also sometimes used heavily. Specifically, 38% of customizations deleted at least 25% of the original textbook and an additional 18% deleted at least 50%... We speculate that professors made deletions in order to remove material that was irrelevant to their class.” (p.55)


The high cost of textbooks is of concern not only to college students but also to society as a whole. Open textbooks promise the same educational benefits as traditional textbooks; however, their efficacy remains largely untested. We report on one community college's adoption of a collection of open resources across five different mathematics classes. During the 2012 fall semester, 2,043 students in five different courses used these open access resources. We --- “All of the materials necessary for the five different math courses included in this study were available online for free; in some instances hard copies of textbooks were also made available for optional purchase at prices ranging from $13.00 to $30.00. If we assume that all 2,043 students would have purchased a $125.00 textbook, and instead used the openly licensed, free online materials, the resulting savings would be $255,375.00.” (p. 42)


The study was carried out on one course (Math), in one institution only.
present a comparison between the previous two years in terms of the number of students who withdrew from the courses and the number that completed the courses with a C grade or better. Our analysis suggests that while there was likely no change in these educational outcomes, students who have access to open access materials collectively saved a significant amount of money. Students and faculty were surveyed as to their perceptions of these materials and the results were generally favorable.

-- “To answer our second research question, we examined the rates of student success and course completion in the year of OER adoption compared to the previous two years. Although this case study prohibits any causal attribution to observed change or lack of change in this data, the patterns might provide rationale and direction for future research.” (p. 46)

-- “But one interesting thread coming from teacher open responses was a sense that teachers were aware that flaws in open textbooks could be readily fixed.” (p. 47)

-- “It seems worth noting that the ability to ask these kinds of questions to teachers and students highlights a unique opportunity for evaluation of open educational resources.
Because any materials used or produced are readily revised, remixed, reused, and redistributed at the campus level, student and faculty perceptions can be easily leveraged to provide real, meaningful improvement of materials for subsequent iterations of the course. The same questions asked of traditional textbooks, in contrast, would by necessity be purely academic, since copyright restrictions would prohibit faculty from making substantive changes to those materials.” (p. 47 & 48)

-- “Ultimately, we believe that our key findings are that (1) there was not a strong correlation between using an open textbook and changes in student learning and (2) students whose faculty assign open textbooks potentially save a significant amount of
<table>
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<td>Textbooks represent a significant portion of the overall cost of higher education in the United States. The burden of these costs is typically shouldered by students, those who support them, and the taxpayers who fund the grants and student loans which pay for textbooks. Open educational resources (OER) provide students a way to receive high-quality learning materials at little or no cost to students. We report on the cost savings achieved by students at eight colleges when these colleges began utilizing OER in place of traditional commercial textbooks.</td>
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<tr>
<td>One limitation in this study is that it is difficult to predict the ways in which students choose to obtain their book. The study assumed that the same textbook was used in each course over 4 semesters.</td>
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-- “The Kaleidoscope Open Course Initiative (KOCI) is a Next Generation Learning Challenges-funded project with three goals. KOCI was designed to (1) eliminate textbook costs as a barrier to student success, (2) improve the quality of course designs in order to increase student success, and (3) create a collaborative community to share learning and investment in the project.” (p. 70)

-- “The average cost per textbook that we calculated ($90.61) is in harmony with other studies on textbook costs (such as U.S. Government Accountability Office, 2005, cited previously).” (p. 78)

-- “When the amount potentially spent by non-KOCI students is combined with the
amount potentially saved by KOCI students, the resulting cost savings are greater than one million dollars for one academic school year. This significant cost savings suggests that the claim that OER can reduce costs for students is valid.” (p. 78)

-- “We acknowledge there are additional costs not accounted for, in that the original creation of many of the OER which were later used in KOCI was funded by grants from foundations or governments. Thus some of the costs described in this article have been shifted from students to grant-issuing organizations. However, it is also important to note that these development costs are one-time costs, as opposed to the ongoing costs faced by students semester after semester.” (p. 78)
We found that the average textbook cost across all non-KOCI classes at the seven KOCI schools we studied was $90.61, meaning that a full-time student would spend over $900 on textbooks each year. Broad adoption of OER makes that cost zero for every student impacted. If these savings were realized by only 5% of the 20,994,113 students in the United States who enrolled in college during the 2011 fall semester (National Center for Education Statistics, 2013), the total savings would be approximately one billion dollars per year.” (p. 81)

| 17. Hockings, C., Brett, P., & Terentjevs, M. (2012). Making a difference—Inclusive learning and teaching in higher education through open educational resources. *Distance Education, 33*(2), 237-252. doi: [http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ973895&site=eds-live](http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ973895&site=eds-live) | Recently there has been growing concern about the ways in which professional values such as "acknowledging diversity and promoting equality of opportunity" (Higher Education Academy (HEA), 2006, p. | Study is limited to the experiences of one institution whilst designing an OER module. | -- “Xerte is a “fully-featured e-learning development environment for creating rich interactivity” (University of Nottingham, 2008). It is an open source authoring tool for creating Web- |
4) have been understood and evidenced in higher education. In this article, we outline how the Learning to Teach Inclusively open educational resource (OER) is addressing this concern by facilitating understanding of the concepts and principles underpinning these professional values. We outline a set of principles for inclusive practice and show how they underpin not only the content of this resource, but also its design, development, and embedding. We argue that while these principles were derived from research in face-to-face teaching, they are just as relevant and applicable to learning, teaching, and curriculum design in distance learning and virtual contexts. Finally, we outline three models for embedding the OER and propose a model for embedding inclusive based learning materials, which includes a variety of learning activity types and supports repurposing. In terms of inclusivity, it provides a set of controls that allow for content to be accessed via the keyboard (using tab, space, arrow, and enter keys) as well as via the mouse.” (p. 241)

-- “For example, we particularly wanted to incorporate opportunities for reflection, collaboration, and dialogue through some form of online forum and/or individual reflective journal.” (p. 241)

-- “Model 1: Developing professional values through the Postgraduate Certificate in Academic Practice. The OER LTI module and video module are currently embedded within the virtual learning environment for this context.”
practice through OER across HE

award and used in face-to-face sessions for discussion of practice, policy, and theory, and as self-study materials outside the block sessions. (p. 246)

“Although it is impossible to establish a direct causal effect of the OER content, materials, and activities on the Postgraduate Certificate participants’ practice, their video clips and reflective accounts show evidence of both inclusive practice and a heightened awareness of the issues of inclusion and student diversity. (p. 247)

“Model 3: Distance learning for (transnational) academic development. Model 3 uses the OER LTI module as a full distance learning package.” (p. 248)

| 18. Ives, C., & Pringle, M. M. (2013). Moving to open educational resources at Distance Education Institution only. | Results are limited to a Distance Education Institution only. | Since the birth of the World Wide Web, educators have been | http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?dire | -- “AU learning designers also focus on the potential of OER as...
Athabasca university: A case study. *International Review of Research in Open and Distance Learning, 14*(2), 1-13. Retrieved from ERIC.

exchanging ideas and sharing resources online. They are all aware of the turmoil in higher education created by freely available content, including some hopeful developments charted in this issue. Interest has grown steadily over the past decade in making a university-level education openly available to students around the globe who would otherwise be overlooked, and recommendations for how to do this are well documented (e.g., UNESCO, 2002; OECD, 2007). Initiatives in the United States (Thille, 2012), Canada (Stacey, 2011b), Africa (OER Africa, n.d.), and the United Kingdom (JISC, 2012) are easily accessed and case studies abound (e.g., Barrett, Grover, Janowski, van Lavieren, Ojo, & Schmidt, 2009).

Supporting the widespread availability of resources for learning activities. One reason for this strategy is the desire to address a traditional weakness of distance education – low learner persistence.” (p. 4 & 5)

-- "AU learning designers do not emphasize the structuring and presentation of content; rather, the course design process begins with an exploration of the most difficult concepts and content in the course to be revised or created. Attention and resources are focused where they will support students’ learning outcomes most effectively as well as address overarching needs for various literacy and lifelong learning skills. (p. 5)

-- “For example, it is now more acceptable to link directly to an online video or open tutorial whereas in the recent past, all required course content...
OER is a goal that Athabasca University (AU) has embraced through association with the Commonwealth of Learning and by becoming a charter member of the OER University (OERu, 2011). The use of OER in AU programs has strategic local implications that go beyond the five reasons for institutions to engage in OER projects described by Hylen (2006). Recently at AU explorations have begun into the potential of using OER in course design and production.

had to be housed on University servers. The focus has shifted to evaluating the reliability of free resources and accepting a certain level of risk with respect to permanence. (p. 9)

-- “With respect to OER specifically and other generally innovative approaches to course development, design-based research methods are used to guide pilot projects. Design-based research provides several methodological advantages for the design and assessment of innovations in education. It is systematic and iterative, in line with emerging understanding of how people learn; it is based in real-life educational situations and is therefore relevant to teaching and design practitioners; and it encourages researchers and practitioners to work collaboratively to create
This paper will review existing literature on Open Educational Resources (OER). It is intended to examine and critique the theories which underpin the promotion of OER in higher education, not provide guidance on their implementation. (1) I will introduce the concepts of positive and negative liberty to suggest an under-theorisation of the term ‘open’. (2) OER literature will be shown to endorse a two-tiered system, in which the institution is both maintained and disaggregated. (3) I will highlight a diminishing of the role of pedagogy within the OER vision and the promotion of a learner-centred model for education. (4) This stance will be aligned with humanistic assumptions of and assess the impact of solutions to learning problems.“ (p. 6)
unproblematic self-direction and autonomy. (5) I will discuss the extent to which the OER movement aligns itself with economically orientated models of the university. I offer these critiques as a framework for the OER movement to develop as a theoretically rigorous area of scholarship.

learning might take place once these obstacles are overcome. (p. 824)

-- “In proposing that institutional involvement can be reduced to the roles of assessment and accreditation, prominent voices within the OER movement appear to reject the pedagogical functions of the university and the place of the teacher. (p. 825)

-- “There is a significant lack of research concerning the ways that teaching in higher education might translate into the model of independent, self-directed access to learning resources. The use of OER in the absence of institutional structures, with their in-built teaching frameworks and pedagogical and subject expertise, implies that individuals are able to manage their own educational activity
without difficulty. In endorsing such self-directed learning, the OER movement has tended to make assumptions about the capacity for individuals to act purely in an autonomous fashion.” (p. 826)

-- “As tantalising as the promise of openness might seem in the context of education a world emancipated from the constraints of archaic institutions, in which individuals are free to do and learn as they please such unregulated autonomy cannot in principle be predicted or assumed to function according to predefined ideas.” (p. 826)

-- “As we have seen, one of the central justifications for OER is the claim that demand exceeds current and future institutional provision. However, this appears to rely on the
promise of great swathes of self-motivated educational consumers, ready to shell out their innate ability to learn in exchange for gainful employment.” (p. 829)

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Two differing models of OER learning are being promoted: one which maintains the restricted provision of the university and another which proposes independent study, preserving the institution only for assessment and accreditation. Higher education needs to consider the implications of this disaggregation and the potential problems incurred by a two-tier education system.” (p. 830)

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The promotion of self-directed OER learning neglects to address the role of pedagogy. OER initiatives which seek the prestige of formal institutional accreditation
need to acknowledge that teaching is integral to the reputation of the university.” (p. 830)

-- “The use of OER can be perceived, not as a more rational improvement to education, or a more humane and naturalised form of learning, but as a further refinement in the exercise of power. The OER movement needs to acknowledge its own discursive alignment with the marketisation and commodification of education, and the ways in which this technology constructs the learning subject as human capital.” (p. 830)


Open educational resources (OER) raise many similar issues for education to those that have surrounded Learning Objects (LO). However the greater use and availability of digital technologies and open licensing seems to be


Study is limited to one institution only.

-- ‘Six incentives for institutions to become involved as a provider of OER that can be summarised as (1) sharing knowledge is a good thing in itself; (2) it increases the value of existing investment of public money; (3) it can cut costs
enabling OER to have wider acceptance into individual and institutional teaching practice. While the need for appropriate design in teaching and learning on the part of educators, which was the primary driver of developments in LO, remains, the very openness of OER is changing the relationships between educators, learners and content (resources) and is becoming a primary agent of change. Experience in OpenLearn, a major initiative to provide OER from The Open University, indicates that some of these changes can be planned for while others will emerge as releasing content openly imposes evolutionary pressures that accelerate change and work around barriers. Development can then be driven by learner expectations of the technology and needs for and improve quality; (4) it can be good for public relations; (5) it provides a chance to explore new global business models; and (6) open sharing will stimulate innovation.” (p. 955)

-- “The majority of OER projects in the initial phase led with publishing content with thoughts on how people will use it secondary. As the field matures more attention is, and will be, needed on researching and theorising, identifying principles and practice that bring the fields closer together.” (p. 960)
informal lifelong learning that in turn impact on how content is being designed and openly presented. It is argued that this represents a shift from a teacher-centric, systematic model of change in teaching practices as embodied in earlier ideas about LO to a learner-centric, systemic model of change as embodied in OER.


Openness has been a feature of higher education for many decades, particularly through the establishment of open universities, although there remain debates about what openness means in practice. Digital technologies, some based on open principles, and digital content, aided by open licences, have both contributed recently to an extension of what is deemed possible under the heading of openness. Nevertheless, while in


Study is limited to one institution only.

-- “Openness, when looked at in terms of OER, is centrally concerned with freedoms as expressed in the open licences applied to them:
- Freedom from paying any money to access and use the content for specified purposes.
- Freedom to copy and make many more copies.
- Freedom to take away and re-use without asking prior permission.
- Freedom to make derivative works (but not necessarily freedom to make profits from them).
principle there may be greater degrees of openness available in higher education it does not mean in practice that many people can still readily avail themselves of these new opportunities to learn, not just because they do not have access to digital technologies but personal circumstances mean they also lack the necessary skills and the confidence to use such technologies in general or for education in particular. In fact it can be argued that this new openness, characterised mainly through the open educational resources movement, may actually widen rather than bridge the digital and educational divides between groups, both within and across national boundaries, through the increasing sophistication in technologies and the competencies expected of learners. This paper

(p. 3)

-- "Open Educational Resources:
- Open Access, Content is provided free of charge.
- Open Licensed, liberally licensed for reuse, favourable free from restrictions to modify, combine and repurpose.
- Open Format, produced in open format and easy to reuse.
- Open Software, produced with open source software.
(fig 1, p. 4)

-- "OERs, in principle, are cost-free to the learner and do not require any prior qualifications. They may enable some to study materials on their own without any social or cultural pressures. But they often require computers and Internet access unless someone can produce low or no-cost hard copies instead, a problem that is often exacerbated in
reviews some of the evidence supporting these different areas of interest and attempts to provide a synthesis of them. It then argues that actions may be required by many intermediaries to help to reduce the diverse social and cultural digital divides within education, including through the mediated use of open educational resources between teachers and learners.

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“Firstly, digital resources and digital environments can substitute for physical resources and physical environments, but inevitably they are different and the need to learn and understand how to create, navigate, and use such resources must not be underestimated. The digital educational divide can mean that some learners are much more sophisticated users of digital technology for learning than their (subject-focussed) teachers, while such fluency (or not) with the technology can exacerbate the educational divide as modes of communication, collaboration, and computation multiply or become more sophisticated.” (p. 8)
Secondly, the very openness of an OER means that learners have much more access to structured content without the other structuring provided by intermediaries such as teachers. While such wide and free access may be good in principle, in practice it may be difficult for less sophisticated learners to make good use of them without direct support from intermediaries.” (p. 8)

| 22. Lindshield, B., & Adhikari, K. (2013). Campus and online U.S. college students’ attitudes toward an open educational resource course fee: A pilot study. *International Journal of Higher Education*, 2(4), 42-51. Retrieved from ERIC | Convincing faculty to accept, create, adapt, and adopt open educational resources (OERs) instead of textbooks for their courses has proven challenging because incentives are lacking. One approach to provide incentive to faculty members is an OER course fee, which could be employed in courses that use OERs approved by the institution for courses that do not utilize textbooks or http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&pr=on&ft=on&ff1=eduHigher+Education&pg=2&id=EJ1067488 | Results are from one course, at one institution. Sample size is small, 17 students. | -- “An OER course fee would provide incentive not only to adopt, but also to maintain, revise, update, and/or customize OERs by rerouting some of the funds students pay for textbooks into institutions.” (p. 42) -- “If the OER course fee were widely utilized at an institution, it would be expected that most students would save money compared with
other resources students must purchase. This fee would provide sustained incentive for using OERs while also decreasing student expense compared with what most currently pay for textbooks. We set out to determine if campus and online students who had used a free OER textbook replacement would support the idea, and implementation at their institution, of an OER course fee. Among online students (n = 17), those who supported an OER course fee at their institution (n = 6) the mean appropriate course fee amount was $9.58/credit hour. Subsequent campus (n = 46) and online students (n = 57) were asked whether they supported a $10/credit hour OER course fee, greater than 67% of somewhat agreed, agreed, or strongly agreed. While these pilot what they currently spend on textbooks. Our findings that a majority of online and campus students support the idea of an OER course fee and its implementation at their institution supports our hypothesis. - (p. 46)
results are encouraging, it is important to note that they are from one course, using one OER, by one instructor at one institution. More research is needed to determine if there is similar support for OER course fees in a broader base of students. If so, OER course fees may be a legitimate approach to increase the acceptance, creation, adaptation, and adoption of OER.


The Open Learning Initiative (OLI) is an open educational resources project at Carnegie Mellon University that began in 2002 with a grant from The William and Flora Hewlett Foundation. OLI creates web-based courses that are designed so that students can learn effectively without an instructor. In addition, the courses are often used by instructors to support and complement face-to-face classroom instruction. Our results are from one course, at one institution. Sample size is small, 60 students.

http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&pr=on&ft=on&ff1=eduHigher+Education&pg=2&id=EJ840810

-- “We were very encouraged to discover that when the OLI statistics course was used in the way it was designed to be used (as a stand-alone course), the learning gains of students were at least as good as in a traditional, instructor-led course.” (p. 14)

-- “When the OLI-Statistics course was used in hybrid form, the results also indicated students
evaluation efforts have investigated OLI courses' effectiveness in both of these instructional modes—stand-alone and hybrid. This report documents several learning effectiveness studies that were focused on the OLI-Statistics course and conducted during Fall 2005, Spring 2006, and Spring 2007. During the Fall 2005 and Spring 2006 studies, we collected empirical data about the instructional effectiveness of the OLI-Statistics course in stand-alone mode, as compared to traditional instruction. In both of these studies, in-class exam scores showed no significant difference between students in the stand-alone OLI-Statistics course and students in the traditional instructor-led course. In contrast, during the Spring 2007 study, we explored an accelerated learning hypothesis, namely, that learners experienced a much more effective and efficient learning experience in that they showed equal or better learning gain in half the time. Finally, the OLI-Statistics instructor leading the class sessions in the accelerated learning study reported that this was a much more enriching pedagogical experience than he typically has with traditional instruction.” (p. 14)

-- “These results and this last anecdote from the instructor suggest a possible mechanism to explain the success of the OLI-Statistics course, especially when it was used in hybrid mode. The core of this explanation rests on the fact that: (1) Students in OLI-Statistics were meaningfully engaging with the material whenever they were using the OLI-Statistics course.
using the OLI course in hybrid mode will learn the same amount of material in a significantly shorter period of time with equal learning gains, as compared to students in traditional instruction. In this study, results showed that OLI-Statistics students learned a full semester’s worth of material in half as much time and performed as well or better than students learning from traditional instruction over a full semester.

(2) students in the accelerated OLI-Statistics course were also meaningfully engaging with the material when they had face-to-face instruction time. (p. 14 & 15)

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"Regarding students’ meaningful engagement with the OLI material, we return to the learning science principles that motivated the course’s design. For example, the OLI-Statistics course was designed to make clear the structure of statistical knowledge, include multiple practice opportunities for each of the skills students needed to learn, to give students tailored and targeted feedback on their performance, and to effectively manage the cognitive load students must maintain while learning. All of these principles would be
predicted to foster better, deeper learning, and our results across all three studies support that prediction.” (p. 15)

-- “The most striking finding in this set of studies is that students in the accelerated OLIStatistics course were able to learn better and in half the time as compared to students with traditional instruction...
The mechanism we posit for this striking result is that the accelerated OLI-Statistics students actually attended their class meetings in a much better prepared state than students usually do. As opposed to skimming (or skipping) the reading before a traditional lecture, our accelerated students prepared for class by actively engaging with the material in numerous ways by completing comprehension checks of their understanding as
they read, applying their new skills to problems for practice, receiving tailored feedback on their answers, and reflecting on their own understanding and questions as they proceeded.” (p. 15)

-- “the instructor came to class better prepared to teach. Thanks to OLI’s automatically generated instructor reports, the instructor was able to see reports on student progress, review summaries of students’ quiz performance, and read students’ reflections and questions about the previous week’s material.” (p. 15)

-- “So, although our main findings involve not just stand-alone online instruction but document the effectiveness of a pedagogically active instructor working with OLIStatistics, there are still a lot of resources
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<td>At the Open University in Scotland &quot;openness&quot; is part of our sense of self; our engagement with Open Educational Resources and Practices (OER/OEP) seems obvious. In this paper we explore some of those obvious aspects and using our partnership with a third sector organisation explore some of the less apparent aspects of openness. In addition to an account of the development and design of a suite of learning resources, the paper also reflects on how those resources have been used in practice, and the ways the design process has informed future developments. In doing so the paper attempts to be open and honest about the practice of openness.</td>
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<td><a href="http://jime.open.ac.uk/articles/10.5334/2013-20/">http://jime.open.ac.uk/articles/10.5334/2013-20/</a></td>
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<td>Discusses in-depth course design in a very specific situation. General findings may not be applicable elsewhere.</td>
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<td>-- “In particular in relation to the altruistic reading of OEP - this focuses on the emancipatory nature of OER as a way to break down barriers to HE access for students.”</td>
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<td>-- “One of our original goals was to look at how working with partners outside the academy might make the development of OER and OEP more sustainable and more relevant. What we have found is that there is a role for partnership, but that role is not simply about bringing in new materials, new markets and new finance. This paper suggests that open is not simply about content and licensing, it is also opening up educational practices more generally.”</td>
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in partnership. The paper is based on a partnership with a third sector organisation Community Energy Scotland (CES). It is funded by the Scottish Government to support and administer funding to community groups interested in energy and sustainability. Some of these communities take forward large scale commercial renewable energy projects, the majority are interested in improving the energy performance of local community facilities - "facilities projects". This paper concerns the development and piloting of a suite of learning resources to support those facilities projects. In particular it looks at the opportunities that openness in partnership presents for HE providers. As an open and distance learning institution it is "normal practice" for us to think about access in
relation to a wide range of factors. Open educational partnerships create new questions and new challenges that disrupt our ideas of open practices and the idea of OEP more generally. Some are around the different needs of partners and learners, in particular how that informs pedagogical design, and some around what "open" means in partnership. Finally, the paper looks at how the materials have been used, and what the development of them has "taught us" about future partnerships and open practices more generally.

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<td>The open educational resources initiative has been underway for over a decade now and higher education institutions are slowly adopting open educational resources (OER). The use and creation of OER are important aspects of adoption and both are</td>
<td><a href="http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&amp;db=eric&amp;AN=EJ1017501&amp;site=eds-live">http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&amp;db=eric&amp;AN=EJ1017501&amp;site=eds-live</a></td>
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<td>Possible limitations to the study include self selection. OER are digital by nature and digitally literate respondents might be more inclined to answer the survey questions, indicating an overrepresentation on the use and creation side. -- “Pawlowski (2012) outlined a four-phase collaborative development cycle for OER: Design &amp; Develop ⇒ Redesign ⇒ Reuse ⇒ Republish” (p. 92)</td>
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<td>-- “Surprisingly, recognition is the lowest factor for both OER</td>
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needed for the benefits of OER to be fully realized. Based on the results of a survey developed to measure the readiness of faculty and staff to adopt OER, this paper focuses on the measurement of OER use and creation, and identifies factors to increase both. The survey was administered in September 2012 to faculty and staff of Athabasca University, Canada's open university. The results offer a snapshot of OER use and creation at one university. The survey tool could provide a mechanism to compare and contrast OER adoption with other higher education institutions. Forty-three percent of those in the sample are using OER and 31% are creating OER. This ratio of "use" to "creation" is introduced as a possible metric to measure adoption.

creation and use factors. This could suggest that intrinsic motivation drives faculty and staff who use and create OER. “ (p. 98)

-- “The data collected from the OER Readiness Survey tool concurs with Pawlowski (2012) that creating OER leads to higher emotional engagement than simply using OER.” (p. 100)

-- “Because of the intrinsic nature of using and creating OER, institutional policy on OER should focus on encouragement, engagement, and support throughout the OER process (Pawlowski, 2012). This means implementing a pro-OER policy making use of available OER whenever possible, conducting searches for OER before considering commercial resources, and supporting a pro-OER environment within the institution.”
Further, it could mean changing the perspective of course development teams from course building to course assembly, thereby including course assembly as part of the “creative” course development process.” (p. 100)

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<td>26.</td>
<td>Miyazoe, T., &amp; Anderson, T. (2013).</td>
<td>Interaction equivalency in an OER, MOOCs and informal learning era.</td>
<td>Journal of Interactive Media Education, Autumn 2013(2). doi:10.5334/2013-09</td>
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<td><a href="http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&amp;pr=on&amp;ft=on&amp;ff1=eduHigher+Education&amp;pg=2&amp;id=EJ1034719">http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&amp;pr=on&amp;ft=on&amp;ff1=eduHigher+Education&amp;pg=2&amp;id=EJ1034719</a></td>
<td>This theoretical paper attempts to clarify design issues that the field of education has encountered in the context of OER (Open Educational Resources), Massive Online Open Courses (MOOCs) and increased emphasis on informal learning, as examined through the lens of the Interaction Equivalency Theorem. An overview of the core concepts of the Interaction Equivalency Theorem (the EQuiv) is provided and an explanation of how the EQuiv framework can be used to analyze interaction designs for Results are limited to a Distance Learning Institution only.</td>
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-- “Michael Moore’s "Three Types of Interaction" model (Moore 1989) was the first systematic use of interaction as a defining quality and characteristic of distance education. This model defines critical interaction in educational contexts as having three components: learner-content, learner-instructor, and learner-learner interaction.” (p. 2)

-- “The main features of the EQuiv are condensed into two theses: Thesis 1. Deep and meaningful formal learning is supported as long as one of the three
online and distance education. The paper applies EQuiv ideas to categorize three variants of MOOCs (xMOOCs, sMOOCs and cMOOCs), from the perspective of interaction design so as to elucidate the major design differences. In conclusion, this paper explores the changing role of formal education in an era of learning opportunity where online educational resources and opportunities are readily accessible and in many cases completely free of cost to the learner.

forms of interaction (student-teacher; student-student; student-content) is at a high level. The other two may be offered at minimal levels, or even eliminated, without degrading the educational experience. Thesis 2. High levels of more than one of these three modes will likely provide a more satisfying educational experience, although these experiences may not be as cost- or time-effective as less interactive learning sequences.” (p. 2)

-- “A new relation of the student-centric trio of student-student; student-content and student-teacher interactions and the more teacher-centric trio of teacher-content, teacherteacher, and content-content interaction will be further discussed as a predominant feature of the OER and MOOC era of
The next section analyzes the various types of interaction, noting the informal opportunities alongside formal learning:

Student-Content interaction: Increasingly, students are being asked and challenged to discover, use create and share content as OERs that can enhance and augment the content supplied by the course creators. Further, Dynamic interfaces are now being deployed that use student profile and behavioural data to dynamically construct individual learner paths amongst content options (Farrell, Liburd et al. 2004)

Student-Teacher interaction: Students have opportunities to gain a teacher-like presence from a variety of sources (for example, recordings of other
teachers and automatic marking of quizzes and even essays), other than the formal teacher assigned to the class. However, issues of responsibility, morality, integrity, cultural maladaptation, accuracy, bias etc. can be confusing and/or time wasting to students.

Student-Student interaction: Numerous online platforms and campus classrooms are being used for socialization, interpersonal support, peer tutoring and cooperative learning as students work through OERs or MOOC content. These interactions can extend to professionals, retired persons or external peers, thus providing international and diversified input to enhance the learning potential of peer-peer interaction (Zhao, Kuh 2004)
interaction: Teachers (or course developers) are able to collaboratively create and use content through tools such as wikis and cloud based course authoring systems (Schnieder 2012). In addition the normal licensing of OERs allows teachers to modify, mash or augment them so as to adapt to their particular educational needs.

Teacher-Teacher interaction: Numerous online resources and platforms allow teachers to interact and learn within networked communities of practice.

Content-Content interaction: On digital networks, content can be interactive and can be designed to update and augment dynamically other content (Farrell, Liburd et al. 2004).”

(p. 4 & 5)

-- “MOOCs are threatening and disruptive to higher
education on a number of levels. Perhaps most fundamentally, is the intrusion of Silicon Valley based venture capitalism and innovation into a world that has long resisted commercialization.” (p. 7)

-- “Though both OERs and MOOCs acronyms contain the word "Open," the nature of "openness" significantly differs. In the case of MOOCs, students may purchase auxiliary products such as textbooks or certificates of completion and advertisers may pay for student data produced during MOOC study, but costs for students is by definition gratis. Note that unlike OERs, in which the content is licensed for use and re-use, the commercial MOOC providers are planning on developing revenue streams by selling their courses to educational, training and other
organizations - thus the content is not open.” (p. 7 & 8)

-- “xMOOCs: Most of the commercial MOOCs use a cognitive behavioral pedagogical model (Anderson, Dron 2011). This pedagogical model is marked by clear objectives, teacher direction and measure behavioral and cognitive psychology )and learning theory.” (p. 8)

-- “sMOOCs: How massive must a MOOC be to provide effective and efficient learning? sMOOCs, an acronym either for Small Massive Open Online Courses or for Social Massive Open Online Courses, use a similar social constructivism pedagogy as developed in campus classrooms. Social constructivism stresses group interactions, team work, discussion, debate and collaborative creation
of knowledge (Jonassen, Mayes et al. 1993)” (p. 9)

-- “cMOOCs: Connectivism has emerged as a "pedagogy for the digital age" (Siemens 2005a) that focuses on network development, creation of persistent artifacts and emergence. cMOOCs achieve this by focusing on students creating and supporting their own personal computer environments, that are networked for learning.” (p. 10)

-- “However, "time is money" principle suggests that the time needed to achieve quality learning may remain consistent in the new era of learning. Additionally, this paper argues that there needs to be a higher level of a learner’s control over his/her learning design by creating necessary surpluses as well as reductions in order to

Open educational resources and open education practices have the potential to lower costs and increase participation in higher education. One hundred and ten individuals from higher education institutions around the world participated in a survey aimed at identifying the extent to which higher education institutions are currently implementing open educational resources and open educational practices. The study explores the drivers and challenges faced by institutions considering the implementation of collaborative assessment and accreditation services for courses based on open educational resources, such as the Open Educational Resource [http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1023951&site=eds-live](http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ1023951&site=eds-live).

First, the survey invitation was disseminated mostly to subscribers of mailing lists that focus on discussions about OERs and open educational practices. The participants are therefore more likely to be interested in the survey topic and likely to have strong opinions on it. Second, the results represent the knowledge of individual respondents and may not present a comprehensive account of the policies and practices of participating institutions.

-- “The OER University (OERu) is conceptually a virtual institution designed to provide free learning opportunities for learners using courses based solely on OERs with pathways for learners to undertake assessment and obtain credit from accredited higher education institutions (Conrad & McGreal, 2012).” (p. 202)

-- “To obtain formal assessment and accreditation for courses provided by the OERu, students will be required to pay fees at significantly reduced costs in comparison to full tuition fees. Students who obtain credentials by participating in OERu courses will be offered the option of using these credentials as credit...”
University concept. Differences between institutions that are participating in the Open Educational Resources University and non-members are examined. Results from the study indicate that although higher education institutions are aware of, and interested in, open educational resources and open educational practices, there are a number of challenges that need to be overcome to achieve their potential.

towards formal qualifications offered by OERTen institutions.” (p. 203)

-- “Strategic reasons for adoption identified in these studies include the potential to increase the reputation and profile of the organisation, thereby providing opportunities for students to obtain first-hand experience of educational courses offered by an institution... They may also secure valuable opportunities for funding from social or governmental grants or encourage potential partnerships with other education organisations.” (p. 203)

-- “the potential of the OER movement to transform education practices has not been realised, largely because of a lack of focus on the policies and practices required to promote the concept of openness
within higher education institutions.” (p. 204)

-- “The primary reasons given by OERTen members for participation in the OERu were opportunities to collaborate internationally, test OER collaboration models as low risk projects and philanthropic reasons.” (p. 215)

-- ”Participants considered the greatest challenges facing their institutions to be a lack of dedicated resources, including committed staff members and volunteers, as well as the cost of redeveloping courses.” (p. 205)

| 28. Olcott, D. (2012). OER perspectives: Emerging issues for universities. *Distance Education, 33*(2), 283-290. doi: 10.1080/01587919.2012.700561 | This reflection examines some of the continuing and emerging issues in the open educational resources (OER) field. These include blending OER with university management structures; | The article poses several interesting questions as to the issues OER face, but offers no answers. | -- “The potential for open educational resources (OER) to transform the global educational landscape is immense. OER have emerged as one of the most powerful resources to transverse |
formal and non-formal OER; the need for sustainable OER business models; and expanding awareness, adoption, and use of OER. In the future, research will need to examine the concept of open educational practices (OEP) and OER issues relevant to faculty incentives and career advancement in the university. The author suggests there is no silver bullet solution to the “open” road ahead. Proprietary and open content will coexist in the education sector. OER are not a panacea for resolving all the range of global education issues and divides. OER are, however, a valuable resource that must be developed and sustained. OER may ultimately be the genuine equalizer for education and for empowering social inclusion in a pluralistic, multicultural, and the global education landscape (along with the World Wide Web and the Internet) in the past century. Many advocates envision OER as a catalyst for bridging the digital divide, leveling the educational playing field between developing and developed countries and challenging the restrictive sanctions imposed on open content by proprietary providers and licensing vendors.”

(p. 283)

-- “OER Advantages:

- Helping developing countries save course content development time and money
- Facilitating the sharing of knowledge
- Addressing the digital divide by providing capacity-building resources for educators
- Helping to preserve and disseminate indigenous knowledge
- Improving educational
imperfect world.

Common barriers cited include:
- The lack of awareness about OER.
- The university elitism that it was invented here so we’ll use our own.
- Faculty resistance given “my content is king in my kingdom;”
- The lobbying of many publishers who see the OER movement as a threat to their historical business monopoly over content.” (p. 284)

-- “open and flexible is essential for the actual OER; however, the managerial, teaching, learning, and applied frameworks that expand openness and flexibility may require more structure to be more flexible.” (p. 285)

-- “These management practices and approaches need to be investigated to identify what works well,
lessons learned, and strategies for how these systems can be adapted and replicated by other universities. Questions:
(1) What management models are most effective for university OER repositories?
(2) Does the academic culture of the university create barriers to institutionalizing OER and OEP?
(3) As an investment towards quality teaching and learning, what level of resources is needed for OER staff and infrastructure?” (p. 285)

-- “An OER multidimensional approach by universities necessarily differentiates between formal and non-formal uses of OER. Does the OER movement need a framework and structure for formal and non-formal use of OER?” (p. 285)

-- “The formal versus non-
formal use of OER raises some interesting questions:
(1) Should universities organize their OER inventory (internal and external) so that students can earn formal academic credit? What structures, policies, and assessment measures will be needed to do this? 286 D. Olcott
(2) Do we leave OER in the non-formal resource category and focus on using OER as open, flexible, and optional resources to support and supplement our formal higher education teaching and learning processes?
(3) Can we have this openness and flexibility without integrating formal OER into our core management and organizational structures?

-- “De Langen and Bitter-Rijkema (2012) have astutely identified one of the major limitations of OER business models—there is no sustainable
“Indeed, this creates some complex questions. (1) What revenue enhancement strategies can universities employ for sustainable OER development and management? (2) Should universities revert to an OER fee similar to the distance learning or technology fee charged to students by many universities? (3) Does the educational value of OER justify university investment of reoccurring budget allocations to the development and management of OER? Will faculty members, department chairpersons, and senior leadership support this? (p. 283)
reuse may have been noted within projects, operating within a short time span, or within specific conditions which limit generalizability. Evidence of reuse in practice has often emerged as isolated examples or anecdotes. Which factors are the most significant and which have impact or influence on reuse, and other factors, is largely unexplored. While technical barriers and enablers to reuse have been well addressed in literature on reuse, from reusable learning objects (RLO) to OER, less attention has been given to the purpose of reuse and the motivation of those who choose to share or use reusable learning resources. This paper draws on 222 factors and issues recorded within a longitudinal cross case comparison of five cases.

| Resource descriptions were recorded and shared, what form of license was chosen, etc. Technical-only factors were distinctive in being separate from factors centred on evaluating the resource, or those relating directly to the purpose of the sharing/use activity, although the purpose may influence the technical option. These factors related not only to technical problems (e.g. how to identify a resource), but also technical solutions. Technical solutions might also seek to address problems relating to Quality, e.g. through rating systems. Quality Factors. These usually related to the resource used or shared, although they could also refer to the quality of the service, e.g. the user-friendliness of the repository interface. In |
within UK HE which collectively address different types of reuse (i.e. sharing and use) facilitation (Pegler, 2011a). Coding and comparison identified three broad and distinctive categories representing the reuse factors noted. These were: Technical (the technical or technological systems supporting reuse, including licensing and rights issues); Quality (the way in which sharers or users may establish or interpret the quality of one resource relative to another); and Motivation (the purpose or motive of the user or sharer of resources). The independent effect of these factors recalls the classic two factor theory of motivation by Herzberg (1968).

that case they overlapped with Technical issues (e.g. a single comment about quality of metadata could be classified as both a technical and quality factor). The quality of the resource could also connect to the motivation to use it (e.g. expensive multimedia, representing rare content or unusual presentation could be classed as relating to both quality and motivation factors). Motivation Factors. These related to the purposes informing the decision to engage in reuse (sharing or use), or leading to decisions or preferences about the conditions under which reuse occurs. Those could impact on Quality or Technical decisions. For example, if sharing was motivated by a desire to showcase institutional or individual work, decisions about controlling any outputs could follow. The quality
of resources shared for this purpose would be likely to be high, and may not represent resources used in teaching. The context in and purpose for which reuse occurs can thus be strongly and specifically connected whether the activity is sharing or use.” (Table 1, p. 4)

-- “While the technical systems that support reuse are becoming more user-friendly, effective use of formal repositories to share resources still requires a high order of skill relative to other technology use by teaching staff, particularly if there is to be modification of the resource.” (p. 6)

-- “This suggests that the benefits of reuse for educators are: gaining access to a wider range of material; being able to repurpose and reuse rather than developing
from scratch; saving time which they can use productively in research and tutoring students; and helping foster collaborations beyond their own university.” (p. 8)

-- “The strongest motivators for reuse, in addition to the previously mentioned improvement to quality of student learning and saving of time were: where this was efficient and saved money and where the resource was rare or unusual.” (p. 11)

-- “If a repository offers particularly fast search (a technical attribute) it may encourage users to try it. However, to sustain interest the resources held there need to be those that are most relevant to the educator and context, or offer a suitable route to dissemination.” (p. 15)

Over the next 5 years, digital textbook sales in the United States will surpass 25% of combined new textbook sales for the Higher Education and Career Education markets. Moreover, we expect digital to be the dominant form factor in Higher Education textbooks inside of 7 years. This growth in digital textbooks will boost revenues in excess of $1.5 billion within 5 years (Private: Digital Textbooks Reach the Tipping Point in the US Higher Education-A Revised 5-Year Projection). This growth will also create avenues for new digital product models, allow new content publishers to enter the textbook market, lead to fundamental shifts in purchasing patterns around learning materials, and expedite the formal adoption of open educational resources to


A little dated, study is using market statistics from 2005 to 2010 to make their projections on digital textbook use in 2015.

-- “Factors within the Publishing, Education, and Technology Markets Affecting the Sales of Digital Textbooks:
1) The cost of textbooks and other learning materials.
2) The availability of digital textbook content.
3) Student buying and sharing trends.
4) The continued growth of for-profit institutions and online learning.
5) The increased popularity and availability of OER and open digital content.
6) An increase in digital-first publishers and open textbook movements.” (p. 179 to 181)

-- “The textbook rental market The textbook rental market is another important variable in the growth of the digital textbook market. Textbook rental increased significantly in 2010 and now represents approximately 5% of the
| 96 | augment premium digital content. | total Higher Education textbook revenues.” (p. 183) |
| 202 | Based on current trends, we project tablet devices to be carried by 20% of the college student popularity by the end of 2012. Most important, these devices represent the best current form factor for delivering rich digital textbooks to students.” (p. 184) |

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This article focuses on the potential of free tools, particularly inquiry tools for influencing participation in twenty-first-century learning in science, as well as influencing the development of communities around tools. Two examples are presented: one on the development of an open source tool for structured inquiry learning that can bridge the formal/informal spaces for [discussion](http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=eric&AN=EJ973899&site=eds-live) OER and OEP and their use in the promoting participation in science subjects.

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-- The recent moves into the production of massive open online courses (MOOCs) as a means of increasing access is interesting in this regard. There is undoubtedly global reach in the uptake of the Stanford MOOCs; for example, 160,000 students from 190 countries on a course on artificial intelligence translated into 44 languages (Lewin, 2012). (p. 225)
inquiry learning. This is contrasted with an example of the use of free tools and community development for observation of scientific phenomena supported by open educational resources (OER) with a citizen science perspective. The article provides an assessment of how the availability of the resources has a potential for shaping the communities using OER for science learning and a discussion of the means of supporting inquiry.

"The examples of inquiry learning selected for scrutiny in this article illustrate two types of OER tools in use. The first example discussed, nQuire, is a tool available freely online from http://www.nQuire.org.uk, which was developed from a consideration of the inquiry learning literature and an identification of what features of inquiry needed support—mainly an understanding of the processes of inquiry. The second example, iSpot (http://www.ispot.org.uk), is a Website that allows an inquiry learning approach to the identification of wildlife while support is provided by a community developing around the resource." (p. 226)

-- “There is a further risk that the match between what the world sees as the markers for knowledge (accreditation
| 32. Marshall, S. S. (2013). Ruminations on research on open educational resources. *Carnegie Foundation for the Advancement of Teaching*. Retrieved from [http://www.hewlett.org](http://www.hewlett.org) | 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 their free use and re-purposing by others." MIT’s OpenCourseWare and the Khan Academy materials are well-known examples. OER have different | The researcher attempts to answer key questions pertaining to OER with real life examples of current practice. However, they continually leave questions answered, stating that more research is needed. | “Access and Use: A first way to start documenting the effects of OER is to compare the probable amount of access/opportunity of an OER with a similar commercial product. Who are the users of the OER? How many people are given the opportunity to learn from it at any given time? Is that number different from how many are given an opportunity and assessment) and these much more informal and transient actions will be lost.” (p. 231) -- “Both examples of support for the development of public engagement in science inquiries described in this article suggest that OER tools may provide an opportunity to promote social inclusion in terms of understanding and participation in science debates.” (p. 232) |
properties from proprietary materials because they are legally free, and, depending on the license selected by the creator, may be copied, reused, revised, remixed, and redistributed. While we understand their properties, we have only a beginning understanding of how OER are used and whether the properties add value for users when compared to similar proprietary materials. This paper explores nine areas of research on OER from policy to development to its relative effectiveness and whether it stimulates innovation. Although existing research is considered, greater attention is given to the possibilities for new research in these areas.

by a similar commercial product? Can an OER product go to scale more easily than a proprietary product? “Effectiveness—Studies of how OER Improves.” (p. 6)

-- “For example, some of the MOOCs have drawn over 100,000 students with perhaps 15 to 25 percent completing the course. If the average class size in the university were 100 students and all completed the course, it would take between 150 and 250 years for the instructor of a conventional course to reach the completion number she reached in one year teaching a MOOC” (p.7)

-- “Perhaps the most useful criterion for a successful OER is that it is able to be easily used and very useful in the environments where it is most needed.” (p.11)
In summary, openness has been disruptive in government, software, research, music, and publishing, and shows promise of being disruptive in education as well.” (p. 22)

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<td>Foundations like Hewlett, Mellon, and Gates provided start-up funding and support that nurtured the field of open educational resources (OER) from infancy to a robust early adolescence characterized by energy and idealism (Casserly &amp; Smith, 2008). However, foundation grants typically focus on establishing exemplars and cannot be relied on for sustaining ongoing operations or generating widespread adoption. One strategy for sustaining and expanding OER is for governments and public funding to take over from the early stage funding foundations provided (Stacey, 2010).</td>
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<tr>
<td>The article discusses government spending, budgets, etc that date back to 2013 and may no longer be in place.</td>
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<tr>
<td>-- “OER will flourish when bottom-up grassroots OER development takes place in an environment supported top-down by policy. Government support for OER can happen at the policy and guidelines level without any additional funding.” (p. 69)</td>
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<tr>
<td>-- “Education demand far exceeds supply and all public governments are seeking ways to provide more and better education for more people. The biggest potential for immediate gain is to adopt a policy that publicly funded education materials be openly licensed and...”</td>
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available to the public that funded them. Publicly funded educational resources would become open educational resources by default. “
(p. 70)

-- “United States, Department of Labor Trade Adjustment Assistance Community College and Career Training Grants Program (TAACCCT).” (p 70)

-- “The first round of TAACCCT grants made available and awarded in 2011 totals $500 million but a total of $2 billion over four years has been committed. Funds are being made available through a Notice of Availability of Funds and Solicitation for Grant Applications announcement targeted to eligible institutions of higher education in the 50 states, the District of Columbia, and Puerto
“There are four strategic priorities for the TAACCCT program:
1) Accelerate progress for low skilled and other workers.
2) Improve retention and achievement rates to reduce time to completion.
3) Build programs that meet industry needs including development of career pathways.
4) Strengthen online and technology enabled learning.” (p. 78)

“Grant recipients are expected to use data and evidence in identifying areas of development and in assessing what course designs work or don’t work. At least one employer must be involved in the program to ensure it is something industry wants.” (p. 78)

“In parallel to foundation-supported
| 34. Thille, C., & Smith, J. (2011). Cold rolled steel and knowledge: What can higher education learn about productivity?. *Change*, 43(2), 21-27. doi:10.1080/00091383.2011.556988 | The article discusses the potential similarities between higher education and the manufacturing sector in the U.S. It explores the challenges in improving the productivity in education while maintaining its quality, and suggests the use of information technologies and data-gathering techniques adopted by manufacturing industries to enhance the products' quality while reducing their costs. It argues that implementing these manufacturing techniques http://ezproxy.uvu.edu/login?url=http://search.ebscohost.com/login.aspx?direct=true&db=aph&AN=59330056&site=eds-live | The paper draws a comparison between the manufacturing industry and a Statistics course, however, similarities may not apply to other subjects. -- “Carnegie Mellon’s Open Learning Initiative (OLI) The OLI is an open educational resources project that began in 2002 with a grant from The William and Flora Hewlett Foundation. Unlike many similar projects, the OLI is not a collection of materials created by individual faculty to support traditional instruction. While OLI courses are most effectively used in combination with classroom instruction, the original and most
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<th>in education can result to more effective and adaptive instruction and can create significant improvements in the knowledge of scholars and students. Information about the Open Learning Initiative (OLI), an open educational resources project at Carnegie Mellon University which aims at developing web-based learning environments, is also provided.</th>
<th>challenging goal of the project was to develop web-based learning environments that could support individual learners who do not have the benefit of an instructor to achieve the same learning outcomes as students who complete the traditional course at Carnegie Mellon. To meet this challenging goal, Carnegie Mellon built on its institutional strengths in cognitive science, software engineering, and human-computer interaction.” (p. 23)</th>
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<td>-- “The instructional activities in OLI courses contain small amounts of explanatory text and many activities that capitalize on the computer’s capability to display digital images and simulations and to promote interaction. Many of the courses also include virtual lab environments that encourage flexible and...</td>
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-- “An intelligent tutor is a computerized learning environment whose design is based on cognitive principles and whose interaction with students is like those of a human tutor—making comments when students err, answering questions about what to do next, and maintaining a low profile when they are performing well.” (p. 24)

-- “Embedded assessments and tutors in OLI courses are designed to support students, but they have an additional purpose that is analogous to the data-gathering instruments built into contemporary manufacturing processes: they collect data on student performance that is fed back into the system. It is used to guide the student, the faculty member teaching the authentic exploration.” (p. 23)
course, the team that will produce the next iteration of the course, and learning scientists who use the data to create and refine theories of human learning.” (p. 25)

-- “Students using OLI in the fully online mode at a large public university with a high proportion of English-as-a-second language learners achieved the same learning outcomes as students in traditional classes, and many more successfully completed the course. In this study of over 300 students, only 41 percent of the students in the traditional sections completed the course, while 99 percent of the students in the OLI version did so (Schunn & Patchan 2009). (p. 26)

language (FL) directors in the United States (US) during Fall 2012. Survey respondents come from a variety of institutions and direct a range of FL programs. The objectives of the study are to (a) determine what FL directors know about open educational resources (OER), (b) understand respondents’ perceived benefits and challenges of using OER, and (c) determine what resources and support are critical to establish or expand the use of OER in FL courses in the US. Results indicate that while 66% of FL directors do not recognize the term OER, many are in fact utilizing them. Those who incorporate OER in their FL courses state they do so to go beyond what is offered in traditional, print-based textbooks suggesting that OER represent more authentic and relevant content.

Savings that can benefit students, instructors, and institutions. Open educational resources are created with the intention to be freely shared with others giving students access to high quality materials and tools versus having to pay exorbitant fees to access similar content (e.g., textbooks or digital tools/applications) from traditional publisher venues.”

-- “A benefit for both students and instructors alike is the fact that OER are materials that are much more malleable than traditional, print-based materials produced by publishers. Specifically, the creators of OER often allow their work to be remixed and adapted by other instructors for their specific classroom context(s) via unique licensing alternatives (e.g., Creative Commons).”
While few (26%) respondents indicate intellectual property concerns, many note challenges such as finding OER at the appropriate level for students, time involved in creating and using OER, and training others (e.g., teaching assistants) how to use technology-oriented OER. The paper concludes by highlighting additional training and resources to more completely and successfully incorporate OER into FL curricula.

-- “The most common reason or benefit of using OER related to the idea that traditional textbooks alone are not adequate to meet the pedagogical needs of an FL course. Many respondents suggested that the printed textbooks that they use tend to become out of date quickly. As a result, many FL directors indicated that to compensate for this, they turned to OER.”

-- “Many respondents acknowledged that students have responded to the use of OER in a very positive way; especially when they involve the use of online tools: “They are of interest to a generation that is used to using technology for academic purposes.”

-- “The first challenge regarding the use of OER related to the idea of
finding the “right” OER. Specifically, respondents indicated that actually locating level- and skill-appropriate OER for their particular FL course(s) was challenging. “

-- “The second major challenge indicated by respondents regarding the use of OER in their FL courses related to difficulties training others (e.g., lecturers, TAs, and students) how to access and make use of the OER.”

-- “Respondents indicated issues related to the ownership of the materials they created. In some cases, universities were asserting rights to materials created by faculty as a consequence of their status as employees. These same respondents also indicated that they were somewhat confused about fair use and copyright laws in general
“We have also seen that support from entities outside of the FL department can play a role in whether or not faculty such as FL directors create and use OER in their courses. This is where libraries and librarians could prove an invaluable partner in the process. Their knowledge and experience with resource location and evaluation, copyright law and its application, as well as their positioning at the front of the open access movement make them ideal partners for educators in all disciplines wanting to move forward with OER.”

“The results of this survey have also indicated some practical obstacles for the creation...
and/or use of OER by FL directors in their programs. Many FL directors indicated that they lacked time to create or revise existing OER to make them suitable for their particular course needs.”

| 36. Weiland, S. (2015). Open educational resources: American ideals, global questions. *Global Education Review, 2*(3), 4-22. Retrieved from ERIC | Educational relations between societies and cultures that begin with benevolent intentions can come to be seen as threats to national autonomy and local preferences. Indeed, side by side with the growth since the first years of this century of Open Educational Resources (OER) there has been worry about their impact on global educational development. Evaluation and research have lagged behind the steady expansion of access to online resources, leaving estimates of the value of digital innovation to the enthusiasm of OER providers and technology | An extensive lit review but no research. | -- “Teachers are not lecturers but coaches.” And the courses they design (for Udacity at least) are aimed at the occupational prospects of enrollees. It is “real world skills” that matter the most as these can be discovered in the habits of “Net Generation” learners elevated to the status of educational models with international roles. As Udacity put it on its website: “Our students will be fluent in new technology platforms as well as curious and engaged world citizens.” (p. 10) | -- “Thrun characterized Udacity’s failed
minded educational reformers. The advent of the "Massive Open Online Course" (or MOOC) has exacerbated the problem, with attention moving toward a form of OER reflecting the enthusiasm of leading institutions in industrialized nations. The American led movement on behalf of the MOOC requires new questions about the motives, impact, and future of OER. This essay accounts for the history of OER, culminating in the MOOC, including how the latter in particular is an expression of American pedagogical and institutional interests representing belief in the transformative educational powers of the latest communications technologies. Criticism of OER and MOOCs can reflect organizational, operational, and ideological considerations. But it should recognize what they offer when experiment with remedial math courses at San Jose State University this way: “These were students from difficult neighborhoods, without good access to computers, and with all kinds of challenges in their lives. ... It's a group for which this medium is not a good fit” (Chafkin, 2013). It isn’t hard to see what that means for claims that MOOCs will be instrumental in solving the problems of global postsecondary learning.” (p. 10)

-- “The OER movement is primarily an expression of economic “neoliberalism” and, as presently organized (in the U.S. at least), has little chance of fulfilling its lofty claims for democratizing education across the globe (Rhoads, Berdan, and Toven-Lindsey, 2013).” (p. 17 & 18)

-- “And the MOOC
there are few other opportunities for formal learning, and as research demonstrates their uses and impact.

providers, for this group of skeptics, care largely about the epistemology of positivism in featuring learning in science and engineering. The courses themselves, even where they venture into nontechnical fields, also fail the pedagogical test by ignoring the constructivist lessons of recent postsecondary reform initiatives in which “social learning” is presented as the only legitimate format. Thus, when the movement is “unmasked,” it will be shown to be all about power, the “hegemony” of the West in the rapidly digitalizing global educational scene, and the absence of any effort to incorporate a “critical” spirit into the experiences of OER and MOOC learners. (p. 18)

"Finally, there is the problem of what is perhaps the most significant sign of
114

institutional (Western or otherwise) power in global postsecondary education. That is, the authority to grant degrees. There are now procedures, via the American Council on Education, to grant conventional credit for successful completion of some MOOCs, but few signs (beyond the organization of OERu) that the rapid growth of OER and MOOCs will actually yield broadly based academic recognition of them.” (p. 19)

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<td>The nature of openness in education has transformed from just relating to open access to encompass a wide range of interpretations. This paper explores the concept of an &quot;open scholar&quot; whose practice is shaped by digital and networked technologies. It is argued that openness represents an effective</td>
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<td><a href="http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&amp;pr=on&amp;ft=on&amp;ff1=eduHigher+Education&amp;id=EJ976455">http://eric.ed.gov/?q=%22Open+Educational+Resources%22+AND+%22Higher+Education%22&amp;pr=on&amp;ft=on&amp;ff1=eduHigher+Education&amp;id=EJ976455</a></td>
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<tr>
<td>Relationships discussed in the article are supported through extensive literature review but no new research.</td>
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| --“An open scholar is likely to:
1) Have a distributed online identity.
2) Have a central place for their identity.
3) Have cultivated an online network of peers.
4) Have developed a personal learning environment from a range of tools.
5) Engaged with open |
working method in this environment, and that creativity plays a key role in realising this. The relationship between creativity and open educational resources is outlined to demonstrate that there is a positive feedback loop between the two processes.

6) Create a range of informal output.
7) Try new technologies.
8) Mix personal and professional outputs.
9) Use new technologies to support teaching and research.
10) Automatically create and share outputs.

(p. 3 & 4)

-- “Three levels of this new, lightweight sharing can be categorised: Frictionless - sharing that occurs without any additional effort required, for example if a scholar is gathering resources for their own research, then using a social bookmarking tool is an effective tool for them as well as making their list public. Quick sharing - this requires a small level of effort, so does not occur simply as a by-product, but the effort required is minimal, such as sharing a link via Facebook, or
| uploading a PowerPoint presentation to Slideshare. |
| Content creation - this requires some effort to produce a digital artefact, for instance creating a blog post, a YouTube movie, or adding and synchronising audio to a presentation to create a 'slidecast'. The effort and expertise required is still relatively low compared to many traditional forms of output.” (p. 5) |
| “The term 'lazyweb' refers to the practice of asking questions of one's network, rather than researching it yourself. This light-hearted term underplays a significant function of the social network, which is access to experts, peer and a wealth of experience which can be easily drawn upon.” (p. 5) |
| “Big OERs are institutionally generated
ones that arise from projects such as Open Courseware and OpenLearn. These are usually of high quality, contain explicit teaching aims, are presented in a uniform style and form part of a time-limited, focused project with portal and associated research and data.

Little OERs are individually produced, low cost resources. They are produced by anyone, not just educators, may not have explicit educational aims, have low production quality and are shared through a range of third party sites and services.” (p. 7)

-- “Creativity in the use of Big OER is then realised through the creative application of existing content within a learning design. The focus of creativity shifts from the production of content to the provision of the
structure and guidance within which that content is located.“ (p. 7)

-- Creativity in Little OER is therefore focused on the production, but also on their aggregation. With Little OER their use is often unpredictable, precisely because they are of a smaller granularity and do not have the same level of intentionality associated with them. “ (p. 7)

-- “Creativity can be seen as a product of openness, in that the liberation of forms of expression and low threshold to production encourages innovation and experimentation. It can also be viewed as a prerequisite for open education, since the sort of default sharing activity that has been stressed as essential for openness to flourish is essentially an act of creativity. The sharer produces
Openness is a fundamental value underlying significant changes in society and is a prerequisite to changes institutions of higher education need to make in order to remain relevant to the society in which they exist. There are a number of ways institutions can be more open, including programs of open sharing of educational materials. Individual faculty can also choose to be more open.


Somewhat dated, article is from 2009.

-- Six ways in which technology has changed HE:
From Analog to Digital: The primary format of information capture and dissemination has changed from analog to digital.
From Tethered to Mobile: Activities that historically tied a person to a specific place have become more spatially accommodating.

From Isolated to Connected: The drive
Increasing degrees of openness in society coupled with innovations in business strategy like dynamic specialization are enabling radical experiments in higher education and exerting increasing competitive pressure on conventional higher education institutions. No single response to the changes in the supersystem of higher education can successfully address every institution’s situation. However, every institution must begin addressing openness as a core organizational value if it desires to both remain relevant to its learners and to contribute to the positive advancement of the field of higher education.

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<th>Without waiting for institutional programs, increasing degrees of openness in society coupled with innovations in business strategy like dynamic specialization are enabling radical experiments in higher education and exerting increasing competitive pressure on conventional higher education institutions. No single response to the changes in the supersystem of higher education can successfully address every institution’s situation. However, every institution must begin addressing openness as a core organizational value if it desires to both remain relevant to its learners and to contribute to the positive advancement of the field of higher education.</th>
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<td>Toward universal, real-time interconnectedness, perhaps our time better describes our time better, reference lists at the end of research articles once provided a genealogy of ideas in paper; hyperlinks now directly connect papers to the sources they cite. While TCP/IP and other protocols once allow computers to make basic connections to one another, web services and APIs allow more sophisticated types of connections between computers. From Generic to Personal: Technology enables “mass customization” of goods and services in almost every area of life. From Consumers to Creators: The tools and other means necessary to produce and distribute various cultural artifacts like books, movies, and music were once the</td>
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expensive, exclusive province of the wealthy. The cost barrier to producing and distributing information and culture has almost disappeared. Word processors and print-on-demand publishing services allow anyone to publish a book and compete with commercial publishers. Free blogging software and digital cameras commonly found in mobile phones allow anyone to become a reporter and compete with newspapers. From Closed to Open: The economics of distributing information digitally, which make per unit distribution costs all but disappear, have enabled widespread, free sharing on a scale never before seen.” (p. 1 to 3) -- “The university library once held a monopoly position in collecting and providing access to high-quality research
materials and guarded this access carefully by only permitting students and faculty access to its collections. Today there are high-quality research journals that publish all their papers online for anyone to read at no cost.” (p. 6)

-- “Universities once held a monopoly on access to teachers, tutors, and others who could answer student questions and support them academically in their learning. The advent of user-contributed websites and social media has drastically altered the equation. A student with a question can now turn to a number of free services like ChaCha, an SMS-based service to which people text their questions and receive answers.” (p. 6)

-- “Higher education once held a monopoly on the credentials that truly
established a person as an expert in his field... But the threat to the monopoly traditional higher education has held on degrees comes from other areas as well. In the computer science domain, for example, technical certifications from Cisco, RedHat, Microsoft, and others can prove more valuable to prospective employees than a bachelor’s degree in computer science. The university’s monopoly on certifying prospective employees has expired.” (p. 7)

-- “A number of organizations are already combining their particular business knowledge with openly available world-class educational material (like Carnegie Mellon’s Open Learning Initiative courses, see [http://cmu.edu/oli/](http://cmu.edu/oli/))” (p. 13)

-- “The availability of
world-class capabilities from both open service providers and other organizations will create an increasingly fierce competitive climate for institutions of higher education, resulting in significant pressure on institutions to adopt a strategy of dynamic specialization.” (p. 13)

-- “If institutions want to exert a significant influence on the direction of higher education, they will likely need to become open service providers in order to maintain their central positions of influence. An institutional commitment to openness will be the ante necessary to sit at the innovation table.” (p. 13)

-- “No single response to the changes in the supersystem of higher education can successfully address every institution’s situation.
However, every institution must begin addressing openness as an organizational value if it desires to both remain relevant to its learners and to contribute to the positive advancement of the field of higher education.” (p. 14)

| 39. Wiley, D. (2010). The open future: Openness as catalyst for an educational reformation. *EDUCAUSE Review, 45*(4), 14-16. Retrieved from https://www.educause.edu/ The word "open" is receiving a lot of attention in education circles. For over a decade, "open" has been used as an adjective to modify a variety of nouns that describe teaching and learning materials. For example, open content, open educational resources, open courseware, and open textbooks are all part of the current higher education discourse. In this context, the adjective "open" indicates that these textbooks and other teaching and learning resources are provided for free under a copyright license that grants a user permission to engage in reuse, revise, remix, and redistribute. Very few applicable facts or figures. Reads like a trade review. -- “The “4R” Activities” 
Reuse: The right to reuse the content in its unaltered/verbatim form (e.g., make a backup copy of the content) 
Revise: The right to adapt, adjust, modify, or alter the content itself (e.g., translate the content into another language) 
Remix: The right to combine the original or revised content with other content to create something new (e.g., incorporate the content into a mashup) 
Redistribute: The right to share copies of the original content, the revisions, or the remixes with others (e.g., give a
the "4R" activities: (1) reuse; (2) revise; (3) remix; and (4) redistribute. Although the modified nouns (content, resources, courseware, textbooks) differ from one another, the actions that operationalize the concept of openness are the same. They are acts of generosity, sharing, and giving. The author argues that institutions and individuals seem to have forgotten these core values of education. He discusses the role of openness and how sharing is changed by new technology. He also shares a lesson from history and describes how the lesson can be applied to today.

40. Windle, R. J., Wharrad, H., McCormick, D., Laverty, H., & Taylor, M. The open educational resource (OER) movement has the potential to have a http://eric.ed.gov/?q=%22Open+Educational+Resour%22%22+AND+%22Higher+
Study concentrates on RLO’s, some of these issues might be specific to

-- “As Thomas Jefferson stated in his famous comparison of knowledge and fire: “He who receives an idea from me, receives instruction himself without lessening mine; as he who lights his taper at mine, receives light without darkening me.” If teachers had to make the sacrifice of unlearning an idea in order to share it with their students, the progress of society would be slow indeed. (p. 16)

-- “The conceal-restrict-withhold-delete strategy is not a way to build a thriving community of learning.” (p. 17)

-- “We find that a focus on developing materials for use, and getting this
truly transformative effect on higher education, but in order to do so it must move into the mainstream and facilitate widespread participation in the sharing or creating of resources and in their reuse. To help in this process, experience can be gained from projects and initiatives which have acted as forerunners to this movement. Here we present the experiences gained and lessons learnt from one such project based around the open sharing of reusable learning objects in health sciences education. In particular we share our experiences of reuse, its patterns, measurement, drivers, barriers, and tools designed to balance the pedagogical tensions between use and reuse. Like many in the OER movement we promote an emphasis on the role of community-building. We also argue that in order to right, is central to stimulating reuse. Although, there are some benefits to the individual tutor for releasing their materials as OER, as outlined in the introduction, it is unrealistic for this to be their main driver. Developing something that is going to be of benefit to them and their students is far more immediate and relevant.” (p. 5)

-- “One of the most significant lessons that we have learnt is the importance of communities and participation. If you want people to engage, then you must engage with them. The notion of “build it and they will come” has been proved wrong over and over again when it comes to educational technology and the same is true of content creation.” (p. 7)
produce materials that are worth sharing, value must firstly be placed on developing materials suitable for primary use, including robust evaluation and an alignment to real-world learning needs. Lastly, unlike the prevailing trends in OER we urge a consideration of quality assurance and outline the role that it can play in promoting sharing and reuse.

“Firstly, we would argue that quality control actually empowers the content provider. In our experience many are reluctant to share content because they feel it is not of sufficient quality. A transparent quality control process can provide them with the confidence that they need to share.” (p. 9)

“One potential consequence of a lack of quality control at the point of delivery is selection of poor or inappropriate resources.” (p. 9)

“Lastly, we would also urge caution in the assumption that content providers will act as their own internal quality assurance mechanism. Although they may well be motivated to share only high quality resources, they may not be the best placed to judge this.” (p. 9)
Although the research is in its early stages we are beginning to identify a number of patterns of reuse.  
1. Transfer effect: Simple transfer to a recipient who reuses resources.  
2. Relational effect: Where rich reuse partnerships are established. A recipient institution develops a relationship with us and then extends the depth and richness of the reuse partnership, providing feedback, data and possibly then providing resources in return.  
3. Nodal effect: Spread from one institution to another and then from the recipient to another.  
4. Ripple effect: Spreading out from a recipient institution at the centre, but continuing to spread through the exposure and recommendation of others.  
5. Cloning effect: A host institution reuses our
resources and then begins a programme of development and sharing for themselves.” (p. 10 & 11)

-- “Although we have asserted that materials that are effective for use in a particular context are more likely to be reused, tensions do exist between the characteristics favouring use and those that make resources reusable. Well integrated and highly contextualised materials may be most effective for a given group of students, whereas small, granular, decoupled and context-neutral materials are more likely to be reusable.” (p. 13)