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Open Educational Resources: Insights and Issues

In this issue we explore the controversial question of Open Educational Resources (OER). What makes educational resources open? What might the pedagogical, intellectual, community, and economic benefits/pitfalls be? What makes the notion of OER so contentious?

We begin with Carina Bossu's paper, which explores the origins – centred principally on learning materials – of the OER movement. Carina's paper traces the development of the licensing arrangements through to Creative Commons. She reflects on the notion of the common good, noting that OER benefits those who seek to learn. Taking up the theme of licensing arrangements, Berenice Scott outlines the implications of OER for academics in terms of making their research available while retaining copyright. This important issue has attracted considerable debate. Don Olcott discusses the background to and the road ahead with OER. He stipulates that there are many issues still to be addressed in the area.

Jason Caudill takes a look at OER from an Open Course Ware (OCW) perspective and sees cost as an issue for on-line learning. David Bull enthusiastically embraces Massive Online Open Courses (MOOCs) and argues that they represent a whole new era in the provision of online education.

We do hope that you enjoy this edition. We hope that you are challenged and enlightened by the discussions you find here.

Dr. Frances Gray

Editor, DEQuarterly

Call for contributions: DEQuarterly Summer 2012/13 edition

The DEHub: Innovation in Distance Education is inviting contributions for our Summer 2012/13 edition, Number 13 in the *DEQuarterly* series. The theme for this issue is ***What's driving information and communication technologies in education?.***

If you are interested in providing a short paper (1,000 to 1,500 words) plus a 50-word biography and photo, please send your proposal for consideration to **fgray@une.edu.au** Each paper submitted will be reviewed by DEHub researchers. All submissions must be received by 16 November 2012.

If you wish to contact the DEHub, or you have any questions concerning this edition, please email Dr Frances Gray at: **fgray@une.edu.au**

To view previous editions of the *DEQuarterly*, please visit the *DEQuarterly* page of the DEHub site: **www.dehub.edu.au/**

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The foundations of the OER movement and definitions

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The foundations of the OER movement and definitions

The Open Educational Resource (OER) movement represents one response to the limitations of the learning object (LO) portals created in the 1990s. Portals such as MERLOT, XenEdu and MarcoPolo held out the promise of online access to a wide range of reusable learning objects. In practice, these sites (and their content) fell short of expectations. The first problem was that no site provided access to more than a selection of the learning objects available. In part, this was due to exclusivity agreements between portals and software publishers. Another issue was cost. Many commercial learning objects were simply too expensive for classroom use. There were also no licensing standards, so educators had to negotiate individually for rights to modify those learning objects that were free for educational use (Downes, 2004).

The open source/free software movement provided a possible solution. Educators asked themselves if the answer was to share learning materials that they had created. The next step was to create an equivalent license to free/open source software for free/open content (Wiley, 2009). David Wiley was one of the first to attempt this development. Wiley and his collaborators released two open publication licences in the late 1990s: the Open Content Licence (OCL) and

the Open Publication Licence (OPL). Neither was perfect, but they pointed the way forward (Wiley & Gurrell, 2009).

The launch of the world's first open educational content repository by Connexions, at Rice University in Texas, was in 1999. Connexions provided complete and reusable modules that could be freely reassembled by educators to form lessons or entire courses. At its launch in 2000, Connexions had no less than 200 modules (Wiley & Gurrell, 2009). Almost immediately, the limits of older learning object repositories and websites became apparent. Currently, Connexions has approximately 20,963 reusable modules distributed in 1,244 collections, including textbooks, journal articles and so forth. Over two million users access these resources per month (Connexions, 2012). Educationalists no longer had to buy or beg to access learning resources; they could simply use and share them.

In 2002, the OER movement received new momentum from the release of the Creative Commons licences. These were not only more flexible than the previous licences available for educational content in the market, they were also better written and easier to understand (Bissell, 2009). The Creative Commons licenses granted authors the rights to share their work with others to use, re-purpose and distribute at no charge. Today, these licences have become the standard licenses for the sharing of OER materials (Bissell, 2009; Bissell & Boyle, 2007; Wiley & Gurrell, 2009). With the release of the Creative Commons licences, the core elements were in place for the OER movement to expand.

Definitions

Since first coined by United Nations Educational, Scientific and Cultural Organization (UNESCO) during the Forum on the Impact of Open Courseware for Higher Education in Developing Countries hosted by UNESCO in 2002, the term "open educational resources" (UNESCO, 2002) has been re-defined several times to meet the fast evolving pace of the movement and to fit into the diverse range of contexts that it has been applied to. A definition that tries to capture the changes is by the OER Foundation:

Open Educational Resources (OER), are educational materials which are licensed in ways that provide permissions for individuals and institutions to reuse, adapt and modify the materials for their own use. OER can, and do include full courses, textbooks, streaming videos, exams, software, and any other materials or techniques supporting learning. (OER Foundation, 2011).

There is a growing consensus that OER ideally need to incorporate three interrelated dimensions:

- Educational values – OER should be free;

- Pedagogical utility – OER should embed the permissions of the 4Rs (reuse, revise, remix and redistribute); and

- Technology enablers – technology and media choices should not restrict the permissions of the 4R framework. (WikiEducator, 2012).

Additionally, to be considered an OER, such resources must "reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others" (Atkins, Brown, & Hammond, 2007, p. 4). A few educationalists go even further. Downes (2007, p. 31) includes in his definition of OER "all the supports for an educational system". The philosophy behind the OER movement is "that of making educational materials a common or public good from which all, in theory, can benefit, but most especially those who receive the least benefit from current systems of educational provision, whether publicly or privately funded" (Lane, 2008, p. 149). Many share Lane's view.

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Making your research output OER (Open Education Resources) accessible

Berenice Scott has a BA from the University of New England and a Graduate Diploma in Information and Library Studies from Curtin University. She has been Copyright Officer at the University of New England for ten years. In that time she has seen the rise of Open Access to academic research and an increased interest in Creative Commons Licencing.

This article discusses how academic and research authors can use Creative Commons licencing to take their Open Access (OA) research not only through cost barriers but also through the barriers of reuse. By using Creating Commons licencing, authors can make their research output OER accessible and free for others to use and reuse.

The OA movement has emerged as a force in the scholarly publishing landscape, and universities, funding bodies and publishers have all responded. Australian universities have established institutional repositories which seek to provide open access to the research output of their researchers. There is also a growing expectation from users and funding bodies that publically funded research

will be available as OA. In addition, traditional publishers are devising new OA publishing models that do not impact on their bottom line: these include delayed OA and OA that is paid for by authors or their institutions. The end result is generally free, online, world-wide access for readers. Under the traditional publishing and subscription model, this content may only have been accessible on a subscription basis to institutional and individual readers; OA publishing is a significant change.

OA is about making content available to readers by removing the barriers between researchers – the content creator – and research users. In so doing, OA maximises the *accessibility* of published research, which allows for more efficient feed-in to the research cycle. Providing free, online access to research is relatively easy and potentially yields immense benefits.

Free access to research publications does not mean that anyone is free to reuse the work.OA content, like all published work, is protected by copyright. Except for reading it, users are only able to reuse OA content under the restricted provisions of fair dealing. In general, users will need to seek copyright permission to quote substantially from published research or to use it in a new or derivative work, even if access to the original content was free.

Lack of certainty about who owns the rights (author, publisher or funding body) and inability or unwillingness to contact the copyright owner, may prevent published research from being used and from achieving its potential reach. Copyright in work, such as research papers, lasts for 70 years after

the death of the author, so barriers to gaining permission to use content increases as time passes. Unless it is easy for readers to distribute and build on researchers' scholarly output in new ways, the research findings risk being underused or becoming orphaned.

Creative Commons Licences require that the author or creator of the work be credited

Just as copyright owners can decide to make their research accessible to readers by removing reading *cost* barriers through OA, they can make the content available for others to reuse in new ways: by removing permissions barriers. OA is, by definition, free to access and read, but for it to be free from restrictions, the copyright owner must provide certainty to the user about how the content may be used.

Creative Commons (CC) licences are widely accepted as a means for copyright owners to licence others to use their work in particular ways without the need for *permissions* to be sought. By applying a CC licence to a work at the point of publication or submission to an institutional repository, authors can invite certain uses of their work by others without relinquishing copyright ownership. Importantly, every CC licence requires that reuse include attribution of the source, ensuring the author's work is properly acknowledged and cited.

Resource sharing platforms such as Flickr, Megatune, Slideshare, Internet Archive and Mixter actively encourage the use of CC licencing to grant others certain rights to use content. The Public Library of Science (PLOS), BioMed Central and Hindawi are examples of Open Access publishing that maximise readership and accessibility of research by providing free worldwide open access to content under CC licencing. More specifically, access is under a CC Attribution (CC BY) licence; this is an important differentiation.

The CC BY licence, already used by PLOS and BioMed for nearly ten years, is the most generous CC licence for the user. Under a CC BY licence, a work can be used by others in any way at all, including commercially and in derivative works. The only requirement is that the original work be cited. While it may be tempting – or seem responsible – for an author to apply

additional CC licence elements, such as no-derivatives, non-commercial use and share-alike, these can confuse users and potentially limit use rather than enable it. For example, by applying the non-commercial (NC) element in a licence, the author may feel that s/he is making a good choice by preventing others from making *profit* from your work. In practice such authors are probably preventing others from using their work at all.

The CC BY licence is the only CC licence that allows works to be incorporated into *all* other CC licencing and reuse situations, even if these new situations impose restrictions. With a CC BY licence, a work can continue to be disseminated and used in new ways under any licence terms, whether the licence terms are equal or more restrictive. It is likely that content made available under conditions more restrictive than a CC BY licence will be avoided in newly developed content, including OER, except via a link to the original.

The CC BY licence should be the licence of choice for authors wanting to disseminate their research to the widest possible audience. Content that is available to be discovered, accessed and reused free of encumbrance (other than the firmly established scholarly practice: the right for an author to be acknowledged and cited) is more likely to be used. Frequently accessed publications raises the author's research profile, giving global reach to his/her research and, in turn, to the profile of their institution or funding body.

In the Web 2.0 world of blogs, wikis and social networking communities, content is not static. Web 2.0 encourages individual and group participation to author, sample, repurpose and share content by emphasising participation and interaction. This collaborative publication process is ongoing, involving constant change to content. Developers of OER and others involved in Web 2.0 know that CC BY licenced content has more value to them than content protected behind a paywall or restrictive licence conditions. Content developers can automatically include CC BY licenced content in new works because of the certainty the licence provides. The result is that knowledge is shared and research can continue to grow.

There is one more condition that is required to open up access and reuse: file type. Logically, if a licence permits a resource to be reused and modified, it makes sense to disseminate the file in

a format that can easily be edited and used under permitted terms. Editable file formats such as HTML, RTF and PNG allow for reuse and modification, while formats such as PDF prevent content from being altered and reused.

Authors and copyright owners have unprecedented access to technology to make their content easily available. So too, users of content rely on these technologies to share, develop and repurpose content. As authors, researchers can demonstrate their willingness to engage in collaboration and reuse by licencing and making their research output available to others in a way that easily facilitates openness and sharing.

Creative Commons Australia: http://creativecommons.org.au/learn-more/licences gives more detail of the licence elements and standard licences

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OER Adoption, Use and Impact: It's About Time!

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Introduction

In my recent article entitled *OER Perspectives: Emerging Issues for Universities (Olcott, 2012)*, published in a Special Issue (OER and Social Inclusion) of *Distance Education (ODLAA, 2012)*, I identified a few select OER issues facing colleges and universities across the globe. The range of scholarly articles in this edition was impressive and my commentary only touched on a small piece of the OER iceberg: the need to blend OER with institutional management structures; considering the formal and informal uses of OER; developing sustainable business models for OER; expanding greater awareness across the global higher education sector about the 'benefits continuum' of OER; the evolving linkages between OER and Open Educational Practices (OEP); and faculty and student incentives for OER use.Whilst these are important, they are certainly not all inclusive or reflective of the diverse continuum of opportunities and challenges for OER adoption, use and impact. Discussing all of these issues would, obviously, take more time.

In retrospect, I kept thinking that perhaps I was missing something of critical importance that, though less obvious, was right in front of me. Indeed, I use the OER iceberg analogy here because, despite the magnitude of the iceberg one observes floating on top of the ocean, I was reminded that seven-eigth of an iceberg is hidden under the surface. In other words, one can miss the essence of something if one is too focused on the obvious. What critical dimension was I missing that was hidden under the exposed OER iceberg?And, incidentally – if the reader is pondering that quintessential question – the answer is NO, I'm not suggesting that the OER movement is heading for a similar fate as the *Titanic*.

Today, in our rapidly changing and fast-paced world, there is a tendency to expect results and impacts immediately. Moreover, many have come to expect that fast results must be synonymous with progress, quality and impact. Educational innovations have become the equivalent of fast food – place your order, roll it out, and a brave new world is on the horizon. In the higher education sandbox, this translates to the axiom that we must be fast if we are to effectively compete in the marketplace.

There is an element of truth in this axiom, however: 'fast' is not synonymous with 'responsive'; 'fast' is not the equivalent of 'quality'; and 'fast' is certainly not the 'silver bullet' for ensuring new revenues, rapid market penetration and enhanced prestige and credibility for a university. In retracing the evolution of open and distance learning over the past twenty years, what was hidden under the exposed OER iceberg became readily apparent. The issue is 'time'.

Lessons from Open and Distance Learning

'If we only had more time...' so the prevailing wisdom goes: more time to develop OER; more time to reflect; more time to refine; more time to play golf; more time for Facebook; more time to write; more time to read; more time to cook; more time to sew; more time for the kids; more time to re-charge our iPads; more time for the theatre; more time to relax; and simply more time for life.

We have heard it all before ... make time, take a course on time management, plan your day more effectively (prioritise), plant a tree, write an article .... the list is endless of all the things we could accomplish if we only had more time. After all, we have control over time don't we? ... or do we? And of course patience is a virtue as long as we don't have to practice it.

Let's look at how this elusive resource known as 'time' seems to be just out of our grasp and how it relates to the future adoption, use and impact of OER.

transformational period for higher education (HE). The rhetoric was visionary– the optimism was ubiquitous – the results, however, fell well short of our early expectations. It made no sense, what went wrong? We echoed all the right sound bites: access, equity, affordable, responsive, innovative, competitive, efficient and new revenue streams. We were on our way to an Orwellian paradise. Well almost. This was followed by the familiar anti-sound bites: faculty resistance, limited resources, 'we are a traditional university', lack of an institutional vision, and 'Open Distance Learning (ODL) is not quality f2f teaching'. Indeed, lingering on the pitch ready-to-enter-the-test-match-once-again was that ageless and elusive obstacle that 'we simply don't have enough time to do it' – or at least 'to do it right'. (By the way, Australia won the test match (lol) on this occasion).

In retrospect, the issue was not just about time; it was the revelation that transformational innovations also need time: time for development; time for experimentation; time for pilots; time for assessment; time for discussions; and time for implementation, synthesis and adoption. Most ODL issues

prevalent in the early 1990s are still with us today. These were not resolved definitively, we have simply learned how to manage them better in the evolving HE environment. Perhaps this was the benefit from the passing of time and learning from our mistakes along the way.

We suffered from a collective amnesia about the essential time-related components of innovation diffusion, product life-cycle models, the processes of social change that challenge conventional norms, and a myriad of political, economic, social and educational issues hidden under the exposed innovation iceberg. What appeared as clear sailing on the surface was an illusion and we hit the submerged part of the innovation iceberg. So what did we learn from this journey? A few lessons that may be instructive as we move forward with OER:

1. Innovations, regardless of their potential benefits, need time to be realigned with the normative status quo (inherently resistant to innovation) elements of social institutions (e.g. universities, K-12, business etc.).

2. Innovation diffusion and related issues are not necessarily resolved over time; we simply adapt and manage these better today because we have the benefit of past models, practices and available resources. Indeed, much of this learning emanates from our mistakes along the journey. Faculty incentives, funding, assessment, technology infrastructure, ODL planning, and many other issues for effective ODL institutions and programmes are on-going in 2012.

3. ODL is not for everyone; many faculty and students never climbed on board – that's simply a fact of life. We must focus on serving the faculty and students who do embrace ODL. Some of our best faculty and students are still novices at technology – which is an insightful lesson in and of itself.

4. High quality open and distance learning programmes are not a result of technology. They are successful because of effective instructional design, teaching pedagogies, assessment practices, and engagement and interaction with students. Good teaching is good teaching whenever and wherever it occurs. And good teaching comes from creative and dedicated faculty.

Technology is important and is the vehicle, not the driver, of effective ODL.

5. The assimilation and adoption of innovations is an educative process.We must continually educate our diverse stakeholders about the benefits of ODL. It also means discussing the challenges. Most importantly, it means articulating to the primary users (faculty and students) how these innovations can positively impact their work, preferably without adding more work.

How can we apply these lessons to the adoption, use and impact of OER? Let's take a look at the road ahead.

Let's flashback to the early 1990s of the open and distance education evolution; the period was heralded as the beginning of a pivotal

The Road Ahead for OER:It's About Time (and other things)!

The OER movement in higher education is about a decade old. This is, relatively, a very short period of time given the diversity of competing innovations and new technologies in the 21st century higher education sector. It is worth noting that innovations are not only synonymous with technologies; we tend to link innovation and technology, but innovations include: creative practices, policies, assessment models and – yes – the re-packaging and distribution of content (Rogers, 2003). Educational technology is, however, a vital delivery venue for the distribution of OER. We have made considerable progress with OER in the first few years and that momentum is accelerating today. It is beyond the scope of this commentary to highlight the diverse range of organisations that have pioneered this movement, particularly in developing countries where proprietary content is often cost prohibitive.

At the same time, we must be patient and let OER develop in the context of our educational systems and societal institutions. Undoubtedly, OER development is much more than an issue of time. It is also an issue of money and human resources.Despite all the gains we have made with OER, the lack of sustainable business models remains a major challenge. The concept of free content is relative – and maintaining, modifying, managing, distributing and housing OER take organisational resources.

Indeed, there appears to be some similarities between ODL development in the early 1990s and the emergence of OER in recent years, which provides useful lessons. Firstly, we need to temper our expectations and recognise that key OER challenges will take time to resolve. We need to experiment and pilot new models of OER distribution, management, and application. We need to refine licensing agreements, explore the feasibility of mega-repositories across sectors, and we need to engage in a serious dialogue about where OER fits in the mainstream university teaching and learning arsenal for both formal and nonformal uses.

Secondly, just as ODL challenged the historical tenants of f2f classroom teaching in universities, the unleashing of open content challenges the proprietary providers of educational content and their exclusive domain and control of this resource. OER challenges the status quo of this domain and our dialogue needs to bring together visionary professionals from both sides to explore a win-win coexistence for the future.

Reminiscent of the ODL revolution, criticisms about the quality of open and distance learning remain even today. Indeed, these criticisms are healthy and remind us that quality matters.We have the benefit of these lessons and can apply them to how we position OER in the mainstream of higher education, K-12, and other social institutions that manage and distribute content. There are, and will continue to be, vocal critics of OER whose rhetoric will echo that 'open and free' content will inextricably result in lower quality educational materials for faculty, students and the public.

Thirdly, and similar to the ODL evolution, we will need to clearly develop and articulate the benefits continuum of how OER are value-added resources for faculty and students. We live in a ubiquitous information and knowledge society and it is still unclear where OER fits within the formal and nonformal use continuum of education. The issue of faculty incentives for ODL remains with us in 2012. Similarly, the issues of incentives and practical benefits of OER for faculty will also have to be considered sooner rather than later. We must also educate our key stakeholders about the potential benefits and applications of OER.

Fourthly, universities will have to examine the transition from OER to Open Educational Practices (OEP). What are the optimum management structures for OER in the university? During the1990s, ODL development grappled with what type of organisational structures should govern an institution's ODL portfolio, where should ODL be housed in the institution, and what academic and administrative policies were needed to manage ODL? And – yes – this took years to refine before the field elevated our practices to address these issues better. It seems ironic now, but this author worked for a university that had five (5) LMS systems running at the same time because online teaching and learning was in its infancy. Everyone was competing to be the lead innovator of ODL on the campus. Perhaps we needed to go through this process to get to the other side. Today, this would be considered the epitome of poor planning and inefficiency by any standard.

Lastly, we must recognise that the development and sustainability of high quality OER rests with our content experts (faculty and others) working in concert with instructional designers, assessment specialists and researchers to create optimum content. Educational technologies will be essential to promote OER access, distribution and sharing of these resources. Online access to OER will drive this distribution network. In sum, OER will be a collective institutional effort focused on serving faculty and students and other key stakeholders

Summary

Today, there are many issues submerged under the exposed OER iceberg that will need to be resolved on the journey ahead. Giving this process the necessary time and patience will be essential for refining OER adoption, use and impact. This commentary has drawn upon lessons from the ODL evolution in the early 1990s to highlight some striking similarities with the OER movement. OER are already having a significant impact on educational access and content delivery across the globe.These impacts will continue as educators develop new approaches to the distribution, management and use of educational content.

The OER movement will require universities to examine the benefits and incentives that these resources bring to effective teaching and learning for faculty and students.Faculty incentives, the transition from OER to OEP, and developing the optimum OER management structures will likely be on the agenda for most institutions. Moreover, we must develop flexible business models for OER sustainability and scalability. This may be the most important issue to address on the road ahead. It's about time we moved forward in addressing these issues and embracing the OER journey.

As you may surmise, there are many other issues relative to OER that I would have liked to address …. 'only if I had more time' – or so the story goes.

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Open, Closed, or Something Else?: The Shift of Open Educational Resources to Credentialed Learning

Dr. Jason Caudill holds a PhD in Instructional Technology and an MBA from the University of Tennessee. Dr. Caudill's research interests are in online learning and technology integration with a focus on applying strategic and market-based perspectives to e-learning. He is an experienced faculty member and technologist.

Open Educational Resources (OER) and Open Course Ware (OCW) are energising concepts for education. The opportunity for anyone around the world to have access to lessons from the best scholars in any discipline, anywhere in the world, speaks directly to the core ambitions of educators everywhere. Ossiannilsson and Creelman (2012) state that, "The initial idea of OER was to widen access to education, provide freedom for learners and take advantages of global experience and knowledge through networking" (p 12). In fulfilling this mission, the technology has found success and has a future of even greater successes with computing devices and mobile data access becoming more available around the world.

A longstanding problem with providing educational materials this way, however, has been the question of how a successful student can prove that they have completed the course of study, acquired the skills and can offer greater value to an employer as a result. In a perfect, world knowledge itself would be sufficient to provide people with opportunities for advancement but, in the existing market, almost everything requires some kind of credentialing. OER and OCW have traditionally lacked this option; the learning is there, but it is not confirmed by a trusted third party.

This has, in large part, led to the current shifts of what were OER and OCW platforms moving to serving as providers of credentialed learning experiences. In most cases the content of the courses remains freely available, but the testing and credentialing stage demands a, usually, small fee. From a financial perspective, these small fees have the potential to generate big incomes, perhaps best exemplified by the millions of dollars being invested by organisations offering such credentials.

Coupled with this shift towards credentialed learning outcomes is the growth of Massively Open Online Courses (MOOCs). In some cases, the lines between credentialed OER, OCW and for-profit MOOCs are blurred, and in other cases they are virtually non-existent – as in the cases of universities marketing their OER or OCW content through a MOOC interface and charging fees for the credentialing. These partnerships and combinations of organisations are quickly evolving, with new announcements sometimes coming every week. During the writing of this article MOOC provider, Coursera, added seventeen more universities to its list of clients and will begin offering their courses (Young, 2012).

OER resources are also directly participating in credentialed learning in a MOOC format. The Creative Commons has partnered with several universities to develop the OER university (OERu). The goal of this operation will be to provide, "… the opportunity to acquire formal academic credit at greatly reduced cost when compared to full-tuition studies" (http://creativecommons.org/weblog/entry/31947). The first OERu course is open for enrollment at the time of this writing, 'AST1000, Regional Relations in Asia and the Pacific', offered by Australia's University of South Queensland. The course will begin on 23 November 2012 and many other courses from other partner universities are scheduled to launch throughout 2013. The ultimate goal of OERu is to award a bachelor's degree on the basis of credentialed OER learning experiences.

The potential exists for this shifting focus of OER and OCW to bridge the gap between the current state of online education and what has always been the envisioned outcome of education. From its earliest days, online education was foreseen to be a world-changing opportunity that would deliver higher education to disenfranchised groups of all types. In many ways it has done just that, with non-traditional students earning undergraduate and graduate credentials through online institutions in circumstances that might have prevented such success through traditional delivery systems. Geographical disadvantages have also been overcome in many cases, with online programs allowing educational access to those who do not live near physical campuses and also to members of the military and others whose extensive travel or frequent moves make traditional education difficult.

Concurrently, however, there have been very real shortcomings to the dominant, perhaps even traditional, models of online education. Most concerning is the issue of cost. While early advocates of online education predicted that there would be drastically reduced costs in online versus on-ground programs, time has proven this concept to be incorrect. In fact, the start-up of an online class is actually more expensive than a traditional course. Over time this expense decreases, but there are still substantial costs involved in offering online courses in the dominant format. This high cost of provision equates to high costs of tuition, which works against the concept of providing educational opportunities to disenfranchised groups.

Recently, the issue of student costs for online program has begun to receive some very unwanted attention. This attention comes from sources such as the United States Department of Education, regional accrediting bodies, and many different legal teams pursuing charges against online degree providers. Clearly, the cost issue, combined with questionable results, has reached a critical point in the development of online education.

The development of the OER model of online education may be a solution to the existing problems in the system. *"The Open Education Resource (OER) for assessment and credit for students* initiative aims to develop a "parallel learning universe" to augment and add value to existing postsecondary education provision by creating flexible pathways for learners using open learning materials hosted on the Internet to earn credible credentials from accredited higher education institutions" (Mackintosh, McGreal, & Taylor, 2011, p 4). These credentialed OER programs are, fundamentally, a MOOC delivery; freely available material is openly accessed by massive numbers of learners and credentialing is provided in an efficient manner with minimum faculty resources.

From a business model perspective MOOCs are a very traditional concept; they are low-cost products sold for low prices but at extremely high volumes. Working with this model, a MOOC provider has the potential to generate substantial incomes while delivering a quality product to a large audience. This is where more traditional online education efforts have failed: class sizes have, by necessity been small; the instructor workload has been high; and, as a result, the costs have been high.

The state of the market today places MOOCs in an early stage of market development. They are growing rapidly, but at the time of this writing are still an introductory product. There are many providers that offer the opportunity for students to earn a credential, but currently the credentials are basically certificates of completion for individual courses. There are signs, however, that this is likely to change in future. During the writing of this article, Colorado State University-Global Campus announced that it will be the first university to allow transfer credit for a Udacity class (Mangan, 2012).

Today, there is one MOOC and the one OERu that can award university credit hours. But, with so many OER, OCW and MOOC resources coming into the market – many provided by prestigious universities – it is easy to envision a time when entire degrees may be obtainable through this format. There are, of course, logistical obstacles to be addressed as the transformation occurs. Valid assessment is perhaps

the most critical, a way to ensure that those receiving the credit from these courses are the same people who are taking and passing the assessments. While a critical issue, this is also one that has been faced from the very beginning of online education and, to date, has been successfully managed.

With the rise of all types of open learning resources, the future for online education has returned to what it once was, a promise for all people, everywhere, to have affordable, accessible education opportunities. The coming years will tell the story of what open learning will become – and it will likely be different from any current predictions, but the size and scope of this movement is simply too great for educators to ignore.

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From Ripple to Tsunami: The Possible Impact of MOOCs on Higher Education

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There is no doubt that the recent emergence of MOOCs (Massive Online Open Courses) has rapidly rippled through the entire higher education sector fuelled by a concern that the new era of certified open education courses offered by elite US institutions could turn to a tsunami which could sweep away traditional models of course and program delivery and force the sector to quickly revisit their traditional operating practices.

MOOCs herald a new era in online provision of education. Several of the world's leading universities have forged alliances: edX is an alliance between MIT, Harvard and UC Berkley; while Coursera, established by Stanford University, has partnered with 33 other universities to offer MOOCs to mass audiences. The elite university brands of these institutions, coupled with quality content and online provision make MOOCs an attractive proposition for many prospective students. Their emergence has sent shock waves through the global education environment, pressuring institutions worldwide to recognise the changing face of higher education provision. Here in Australia, in rapid response to these developments, there have been recent announcements by both the University of Queensland, who see their MOOCs initiative as an integral component of their blueprint for technology enhanced learning http://www.uq.edu.au/news/index.html?article=25297, and Melbourne University, who has entered into a

partnership agreement with Coursera, to commence the offering of MOOCs http://www.campusreview.com.au/blog/features/it/melbourne-uni-offers-free-online-courses/. Daniels (2012) recently noted "*There seems to be a herd instinct at work as universities observe their peers joining the xMOOCs bandwagon and jump on for fear of being left behind*".

While this new wave of open online content has shaken traditional institutions, MOOCs, at this stage, do not provide credit towards an undergraduate degree. They issue certificates upon successful completion of the course, wider recognition of which is yet to be fully determined. However, they clearly mark the direction of online and open education and the formal credentialing of courses undertaken in this mode may not be far away.

One such initiative is being forged by the OER Foundation http://wikieducator.org/OERF:Home, an independent, not for profit organisation which has established a strategic international alliance between institutional members of the Foundation to provide accredited and credentialed higher education awards. For all intending purposes, the first steps towards building an OER university (OERu). http://wikieducator.org/Towards_an_OER_university:_Free_learning_for_all_students_worldwide. Taylor (2007) proposed significant aspects of the model that the OERu will apply, including the concepts of volunteer academic support and formal credentialing of OER courses.

Led by Wayne Mackintosh, the OER Foundation has accrued an impressive list of highly regarded institutional members, including two Australian universities, Southern Queensland and Wollongong, all of whom share the foresight to recognise the momentum which OER is generating. As the OER movement grows further, other higher education institutions are being swept into recognising that they must participate in order to be well positioned for an increasingly open future for higher education. Why would a student continue to pay the high fees of a traditional degree when that same or a very similar qualification may soon be offered for free or at very little cost?

The movement towards credentialing of open, online courses will be further advanced in November this year when the University of Southern Queensland becomes the first anchor partner of the OERu to formally offer academic credit for an undergraduate course which it has developed entirely with OER, including reference to very many open access journals. The course, *Regional Relations in Asia and the Pacific*, will be the prototype offering of the OERu. It is a first year course in International Relations which employs a pedagogy of discovery. Students are placed at the centre of the learning process, discovering, evaluating and discussing OERs through a free ranging learning experience. The discovery process will further facilitate the development of digital learning literacies (Taylor, 2011).

The course will be accessible to the entire online global community. Those learners who formally register for assessment will pay a fee for this service. If the participation with MOOCs is used as a yardstick, then demand is anticipated to be substantial, although, tempered by the introduction of a cost recovery fee for assessment. As a result, the initial prototype offer will be capped to ensure that newly developed academic and administrative systems can be managed effectively. The aim of this manageable offer is to learn from the experience and refine the model ahead of further OERu developments which could possibly scale to thousands of formally registered students. The Open Access College (OAC) at USQ will provide the processes for registering,

assessing and facilitating the first cohort of students. The OAC has a strong social justice agenda which is particularly fitting for the first OERu prototype offering.

The initial fee for formally registering for assessment for the prototype course has been set at cost recovery with a small margin for contingencies and administration. Beyond the feedback which will be given on assignments there will, at this stage, be no formal student support provided. The course will use peer learning support strategies similar to that employed in MOOCs and there will be a Q&A community support forum. However, in the longer term, the OERu has an AVI (Academic Volunteers International) project under development which will eventually provide an extensive network of academic volunteers who will engage with students through the Moodle environment in which the full course is provided. Students who successfully complete all assessment of the course will be given a transcript of their achievement which can later be used to claim credit towards a Bachelor of General Studies at the USQ. Eventually, such credit may well be offered towards awards by many other OERu partner institutions.

A major driver of the OER movement has been altruistic in nature. The public benefit, particularly in the developing world, which may emerge as a result of improving access and reducing the cost of higher education is beyond question. However, one of the major barriers, for those who advocate the widespread use of OER and the provision of processes for obtaining formal qualifications from these studies, has been institutional concern over the challenge this presents for established business models in higher education. Clearly, financial sustainability is a significant issue for OER providers and the race is on to find a means by which OER provision can raise some institutional revenue or provide other indirect institutional benefits. The jury is still out with regard to the financial sustainability of MOOCs but Coursera partnership agreements propose eight potential business models which might be employed (Daniels, 2012).

MOOCs have already demonstrated their capacity to attract large numbers of learners. However, until such time as formal credit towards an award can be earned through these courses, they are unlikely to serve the burgeoning need of the developing world for higher education. Early completion rates of 10 per cent or less for current MOOCs and concerns about plagiarism (Daniels, 2012) must also be of significant concern, and possibly reflects upon the quality of the pedagogy employed in these offerings. Elite universities who have built their reputations on research outputs are not necessarily the leading lights in online pedagogy, this strength is probably vested in lesser known institutions who have a long history of distance education provision or well established e-learning profiles. Success for students needs to accompany open access and, until this is achieved, MOOCs may not produce the full potential of their educational benefits. Consequently, the OERu initiative, discussed above, which is distinguished from MOOCs by the offer of formal credit towards an award, a highly flexible pedagogy of discovery, which is scalable to large populations, and a cost free system of student engagement and support may be a preferable option for obtaining a higher education.

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