Widening participation in higher education through online pedagogy and open education practices (OEP)

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Abstract

The recent and exponential growth in open education resources (OER) is seriously challenging traditional models of education. Continuous improvements in information technology, infrastructure and services, coupled with the emergence of open online provision of education, is poised to enable more people to access learning opportunities while driving down costs to the student and overcoming some logistical barriers. This paper reports on two initiatives to utilise technology and open source learning materials to bring bridging programs to two unique cohorts of students: those incarcerated in correctional centres and those hindered by their social, cultural and linguistic backgrounds. Both groups require unique adaptations of existing curriculum and pedagogy to overcome challenges to their participation and success. The paper considers issues of intellectual property and copyright of resource materials, and advocates the use of open educational resources and the adoption of a pedagogy of discovery to equip these students with the skills to independently support their own education and training.

Context

Continuing advances in technology and the provision of global access to education through online delivery has already provided considerable opportunities to widen participation in higher education. For many years the provision of online education remained tied to commercial course offerings but of late, with the exponential growth in the availability of open education resources and the more widespread adoption of open education practices, this provision is becoming increasingly affordable and accessible. It has long been recognised that open and distance learning (ODL) and e-learning will provide the means for the world to address the anticipated substantial growth in demand for higher education (Bossu, Bull, & Brown, 2012). The rapid expansion in demand for higher education is most evident in developing nations, particularly

India and China, but many others are following the trend identified in developed counties where participation rates of between 40 and 50 *per cent* are perceived as necessary for sustained development (Daniel, Kanwar, & Uvalic-Trumbic, 2009).

The emerging diversity of mobile technologies and the growing use of Web 2.0 technologies fostering social networking, interaction and collaboration, coupled with the expansion of information networks, such as the National Broadband Network (NBN) in Australia, have provided the opportunity to substantially widen participation in higher education to people who might otherwise not have been able to access tertiary studies (Bossu, *et al.*, 2012). However, until recently, even with the advent of OER content repositories providing free and global access to the sum of knowledge they contain, it is still necessary to enrol with an institution in order to access learning materials for formal credit. Over the last decade a vast and growing number of OER sites have emerged, threatening to reshape the future provision of higher education.

The early foundations for OER were laid in the Open Content Project, the OpenCourseWare (OCW) activities of MIT, the Open Knowledge Foundation, and the William and Flora Hewlett Foundation and others. These projects established repositories of educational content that could be accessed via the Internet as authoritative sources of knowledge. They, and other projects, have subsequently evolved to a state of sharable, freely available educational content with philosophical underpinnings grounded in the accessibility of education being a public social responsibility. The Internet has provided OER with a global dissemination platform aimed at enhancing collective wisdom and designing learning experiences that maximise the use of the medium. The adoption and use of OER has also signalled a fundamental shift in the way in which academics view their courses, away from the information conveyed in course content towards the processes used in learning and acquiring knowledge.

The early work of the Massachusetts Institute of Technology (MIT) in establishing the OpenCourseWare Consortium (OCWC) (http://ocw.mit.edu) has produced perhaps the most widely recognised open content repository. The Consortium http://www.ocwconsortium.org/ now comprises more than 250 educational institutions spread across the globe, each contributing their lecture and teaching materials from a minimum of 10 courses, to this publicly accessible domain. These institutions share the common goal of advancing the sharing of educational content and, as a consequence, impacting upon global educational opportunity. MIT itself now boasts some 1900 online courses, with the total

published collection of the Consortium amassing in excess of 13,000 courses in 20 different languages.

More recently, MOOCs (Massive Open Online Courses) have emerged. These 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 Berkley, while Coursera has been established by Stanford University 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, which has sent shock waves through the global education environment, influencing institutions worldwide to recognise the changing face of higher education provision. Daniels (2012, p. 3) noted, "There seems to be a herd instinct at work as universities observe their peers joining the MOOCs 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 that has established a strategic international alliance between institutional members of the Foundation to provide accredited and credentialed higher education awards. For all intents and purposes, the first steps towards building an OER university (OERu, 2011) (http://wikieducator.org/Towards_an_OER_university:_Free_learning_for_all_students_worldwide).

The OER Foundation has already accrued an impressive list of highly regarded institutional members who share the foresight to recognise the momentum that OER is generating. As the OER movement grows, many other higher education institutions are likely to be swept into recognising that they must participate in order to compete. 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 OER Foundation (OERu, 2011) has proposed a logic model that links learners to the OER university, the academic contributions of various member institutions and results in formal qualifications for participant students. The model is designed to provide affordable access to

tertiary studies for learners who might otherwise be excluded from participating in higher education.

Along with the exponential growth in the availability of OER and the changing landscape of technology has come a shift in the way in which academics view their learning materials and the practices they employ as their pedagogy. The discussion regarding OER has increasingly evolved to be one of OEP (Open Educational Practices) in which new approaches to delivery, curriculum development, pedagogy and sustainable business continue to emerge. Institutions are now toying with a range of initiatives that will lead to more widespread and effective open pedagogical practices based upon the creative use and management of OER with the intent to improve the degree of openness and the quality of provision. The movement has resulted in a significant number of reports, journal articles, case studies, guidelines and framework documents spearheading open educational developments (Bossu, Brown, & Bull, 2011).

Widening participation
In Australia, as in other developed nations, widening participation in higher education has been a central feature of government policy for more than the last two decades. This policy direction was famously articulated in the policy and action framework entitled *A Fair Chance for All: Higher education that's within everyone's reach* (NBEET, 1990). Subsequently, this widening participation framework became the driving force to remedy the mismatch between the composition of Australia society and the social composition of the Australian higher education sector, a general policy direction which persists to this day. Despite the good intentions of this framework and subsequent policy additions, such as the most recent Bradley review of Australian higher education (Bradley, Noonan, Nugent, & Scales, 2008), which set ambitious reform targets for the sector, while participation improvements across some sectors of Australian society have been achieved, in other areas, in particular low socio-economic status (SES) and remote and regional participation, little has changed in 20 years (James, 2007).

A further Australian social inclusion policy has been the provision of government-funded access for people who were identified as belonging to groups considered under-represented in Australian higher education and in need of preparatory studies prior to entry to undergraduate programs. This well-intentioned enabling policy has provided a funding platform for widening participation across the sector and has been effective at the institutional level, but it has not succeeded to further diversify the national student population

(Bossu, *et al.*, 2012). While the policy does recognise that widening participation demands appropriate preparatory programs for those who are underprepared for tertiary studies (Daniel, 2011), a search of OER sites does not produce many accessible preparatory courses (Huijser, Bedford, & Bull, 2008). One of the few is provided by the OAC at the University of Southern Queensland on their OCW consortium site. This is the largest distance education program in the Australian higher education sector, the Tertiary Preparation Program (TPP). The core courses of this program are accessible but at the present time the mechanisms do not exist for formal recognition of the successful completion of the courses which, through traditional enrolment, leads to guaranteed entry to undergraduate studies.

While there are a range of factors that have been identified as contributing to participation or non-participation in higher education, cost and geographic isolation persist as barriers. Despite long-established ODL provision and enhancements and expansion of information networks, both of which suggest the removal or reduction of barriers, Australian participation rates for low SES and rural and isolated persons remain an issue. Such inequalities between groups can be broadly described in terms of access to, use of, or knowledge of ICT as a digital divide (http://en.wikipedia.org/wiki/Digital_divide). Clearly there are sections of the population who still have limited or no access to appropriate broadband technology, because of either cost or inadequate computing skills. For these people, the emergence of OER and OEP has not yet provided the vehicle to overcome their educational disadvantage. Their dependence on affordable access and the technological skills to use the provisions effectively limits their ability to participate and serves to widen the digital divide further (Helsper, 2011). Two specific groups of potential students and a means to assist them to overcome or reduce the impediments of these barriers are examined below.

Incarcerated students
Prisoners in Australian correctional centres have no direct access to the Internet, and, in many cases, have very limited access to computing facilities. Incarcerated students' access to the Internet is generally limited to information that is accessed by correctional centre education officers from an approved education provider's website and given to students in print form for approved study purposes. While education officers willingly make every effort to support their students, their heavy workloads and the limited time and resources available to access and print study materials impinge upon their capacity to support students who may be enrolled in a diverse range of courses and programs. Increasingly, most programs offered by Australian higher education institutions rely upon internet access to relay essential

study information. This situation severely limits the ability of incarcerated students to undertake tertiary study and would appear to place prisoners on the losing side of the digital divide. Compounding these limitations in obtaining an education and professional qualification, which might be used to advantage to gain employment upon release and assist in reducing recidivism, is the socially marginalising effect of being illiterate with regard to the ability to use information technology for life and employment purposes. Long periods of incarceration are likely to further exacerbate this social and educational disadvantage through the lack of opportunity to acquire information literacy during the period of incarceration.

Such arguments would suggest that the inclusion of the use of information technology in prisoner education programs, particularly those related to future employment prospects, would assist in offender rehabilitation and reduce the rate of recidivism after release. However, the paramount concern of correctional services authorities is, understandably, security, and unlimited access to the Internet would consequently be a serious threat to this concern. So, for those involved in provision of education to prisoners, an assumption should be made that this situation is unlikely to change in the foreseeable future and access to the Internet by incarcerated students will continue to be almost totally restricted or only supported by the assistance of their education officers. Furthermore, there is anecdotal evidence that a growing number of tertiary institutions are now withdrawing their support for the enrolment of prisoner students in their programs due to their increasing reliance on internet delivery of study materials and the resourcing difficulties which this presents to the institution.

In response to these concerns, academics and researchers at the USQ have a trial project, Pleiades, under way with the Queensland Department of Corrections and specifically the Southern Queensland Correctional Centre (SQCC), in which a simulated internet study environment has been made available to incarcerated students enrolled in bridging courses (Farley, Murphy & Bedford, 2012).

The Pleiades project, underpinned by the technical expertise of the Australian Digital Futures Institute (ADFI) at USQ, is piloting the delivery of Open Access College (OAC) preparatory courses using internet-independent digital technologies with the aim of reducing the digital divide for these students. The project has created a simulated version of the university's StudyDesk environment and utilises a stand-alone version of the Moodle learning management system (SAM). The study materials are loaded onto a network server within the correctional facility; there is no internet connectivity. This

enables students to interact with the content of the course, engage in discussion forums within the limits of the centre, complete online activities, and interact with various multimedia course-delivery methods. This brings a learning experience to incarcerated students which to a large extent mimics the experience of all other students enrolled in the course. It also provides the added benefit of providing incarcerated students with an opportunity to develop e-literacy skills, which so important for future study or employment purposes (Murphy, 2012).

In addition to SAM, the project has provided students with specially selected e-readers. They have no wireless or other connectivity abilities, but are loaded with all course-related readings and enable students to continue their studies outside of the computer laboratory.

The success of this pilot will be evaluated over coming months and if considered successful will no doubt be rolled out to other prisons across Queensland. The project also lends itself to addressing the internet-access issues of other groups such as those from rural and remote regions with limited internet accessibility.

Culturally and linguistically diverse students
International students have become a significant source of income for Australian tertiary institutions and the third largest export earner for Australia, attracting $16.3 billion dollars in export income in 2010–11 (Australian Education International, 2011). Many of these international students undertake English language preparatory studies prior to entry to their undergraduate and postgraduate programs. They are often sponsored by their own governments. The cost of living and studying in Australia is high and this has limited the participation of students from many developing nations and from families of lower SES, who are unable to afford the cost of an Australian higher education.

Australia also has a significant migrant and refugee immigration intake each year, resulting in large numbers of new residents from non-English speaking backgrounds (NESB), who are confronted with difficulties in obtaining employment and further education and training until proficiency with the English language is improved. Migrants and refugees are often restricted in their ability to attend face-to-face English language tuition, which has been the traditional means for acquiring these language skills, due to family and financial factors.

In response to these social environments, for internationals who may not be adequately endowed to meet the high costs of living and studying in an expensive country, and for domestic NESB persons who may be restricted in their participation by a range of impinging social circumstances, new modes of

delivery of English language education and pathways which assist such groups to access higher education and which harness enhancements in information technology, need to be developed. Substantial improvements in online education can now provide for learning of English language virtually anywhere and at any time, providing much more flexible study opportunities without the need to attend face–to–face, classroom-based lessons.

Providing a bridge to higher education, the OAC at USQ has developed an online English for Academic Purposes (EAP) Program, which upon successful completion guarantees entry to the undergraduate programs of USQ. The online program mimics the on-campus offering but it utilises multimedia capabilities to provide extensive study materials, additional resources, quizzes, discussion forums and social chat. Considerable online tutor support is still an important component of the program but this is mediated by the facilitation of peer-assisted communication and collaboration.

One of the challenges of developing an online English language program has been limitations imposed as a result of copyright considerations. There is a huge volume of English language teaching materials and resources readily available but relatively few of these are open source. As a result this program has chosen to develop their own materials and to direct students to open source sites for supplementary materials.

The EAP online program cannot fully be described as 'open' as there is a fee attached to tuition for international students. However, in terms of widening participation to Australian permanent residents, both migrants and refugees from NESB, the program has secured funding from the Australian government's enabling provision mentioned earlier in this paper and, as a result, there is no cost to these students. It has also gone to great lengths to replace the use of copyright materials with open source resources, largely removing the cost of expensive textbooks.

Intellectual property

One of the major challenges for open resource practitioners are issues surrounding intellectual property, more specifically copyright. Under copyright law one cannot reproduce, copy or distribute to the public copyright materials without the permission of the copyright owner. This primarily serves an economic purpose, providing remuneration to the publisher and/or the creator of the work. There are some permissions that can be provided, the most common being known as 'fair dealing' in which a proportion of the material may be used without payment. However, while modern technology has the capacity to widely

draw upon copyright materials for educational purposes, the full advantage of these materials are frequently not realised due to the legal restrictions surrounding their use (OECD, 2007).

In response to these concerns, open licences have been developed to enable authors to make their work more freely available. The most well-known of these open licences is Creative Commons, which provides a range of descriptors to be used at the discretion of the provider should they wish to place limits on the use and repurposing of the materials. The licence descriptors can be used alone or in combinations. Creative Commons licences have provided a means to negotiate the legal rights in digital content and, as a result, provide the facility for the sharing, reshaping and repurposing of knowledge for the benefit of education and innovation (OECD, 2007). The advent of open licensing of educational materials and the huge growth of OER availability have lifted the limits and scope of online opportunities and provided new scope for pedagogical innovation.

A pedagogy of discovery
Taylor and Mackintosh (2011) have proposed a pedagogy of discovery as a means to complement the establishment of an OER university. This work was inspired by the 2009 development of a comprehensive framework known as "Learning Literacies for a Digital Age" (LLiDA) (Beetham, McGill, & Littlejohn, 2009). The LLiDA framework provides a detailed analysis of academic practices and matches these to digital practices specifying competencies in a wide range of learning skills.

A pedagogy of discovery commences with relatively structured tasks and directions, requiring students to develop strategies to identify open online content and to practise using a range of digital tools to select and evaluate content for relevance to their particular needs. Facilitator feedback is provided in the early stages of developing these skills and this support is gradually replaced by challenging students to work in collaborative networks in support of their learning endeavours. It is argued that by embedding such practices in the pedagogy of higher education, students will acquire the expertise to apply self-direction in their learning throughout life. The student sits at the centre of the learning process, receiving encouragement and guided engagement until comfortably able to contribute autonomously with other learners and peers. A significant feature of the pedagogy of discovery is its scalability to large numbers of students, making it an attractive and sustainable means to provide online education on a global scale (Taylor *et al.*, 2011).

Future directions

This paper set out to briefly describe the revolution that is occurring in higher education as a result of the substantial growth in the availability of OER and the emergence of wide ranging OEPs. These online developments can potentially contribute to widening participation in higher education to many individuals who may have access to the Internet but until now have been limited in their ability to participate by financial and social factors. There is still a long way to progress in this regard, but the OEP practices described in this paper, to address the participation of incarcerated students and NESB students, demonstrate that conventional online technologies and emerging pedagogical practices can contribute to overcoming the barriers that have prevented some people from obtaining a higher education.

There is now no turning back the clock; we should expect governments, institutions and individuals to increasingly recognise the social benefits that will accrue from the reduced cost of open access to higher education and its online offering to a global audience. It is difficult to predict future directions of the movement, but it will continue to challenge traditional models of higher education and require creative and innovative approaches to the provision of curriculum and pedagogy.

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