



OpenTab: imagining an open, mobile future for first year business students

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The OpenTab project investigated an open educational (OE) approach to developing course materials using tablet devices (iPads) to access Open Educational Resources (OERs). It explored the implications of applying an open approach to the development of materials for use in the faculty's new common first year core (CFYC) subjects. Conducted in parallel with a trial roll out of tablet devices in a core subject in the School of Business, the project revealed a range of issues that the project team intends to address as it continues to develop a model workflow for other subjects in the university.

Keywords: Open educational resources, business, curriculum design, mobile devices, Enquiry-Based Learning

Introduction

Fulfilling the promises of Open Education

Starting over a decade ago with a strong social justice agenda, the OE movement advocates the opening up of educational resources in order to make them available to everyone. In this way, OE is a means for an information-based society to support equity in education.

With the costs of education on the rise in most countries, making things such as textbooks, videos and online resources as cheap as possible is becoming even more desirable. Open educational resources (OERs) can play a role in providing alternatives to traditional published resources, and in some cases completely replace them. Projects such as Wikipedia have now demonstrated that it is possible to have free resources that are high quality using crowdsourcing.

Creative Commons licenses make it possible to adapt content for different educational purposes, and the future holds great potential for open education resources to be stored in digital libraries in order to be reused and customized.

Perhaps we are entering a world where learning objects will be at our fingertips. Learning objects on different topics will likely be something you can grab like magazines and newspapers on the way into a plane, bus, or train. (Kim and Bonk, 2006, p. 2).

Another issue that the OER approach has addressed is the problem of keeping learning resources up to date. Textbooks are often redundant as soon as they are published, resulting in reluctance among many students to purchase expensive books which can never be resold.

The authors started the quest described in this paper in 2012 with all of these ideals in mind: social justice, equity, cost reduction, timeliness and adaptability. With all of these potential gains, and despite the development of many successful repositories the OE movement has often failed to connect with teaching staff. Resources remain underutilized and practitioners often effective design skills to integrate them in teaching in meaningful ways (Conole and McAndrew, 2010). We now turn to describing our approach to taking up the challenge of addressing these shortcomings in a business discipline context using a practical approach to subject design involving staff development and support.

OpenTab Project

The La Trobe University OpenTab Project was initiated in 2012, with the aim of adopting an OE approach to developing and publishing course materials for a suite of four subjects making up the common first year core (CFYC) in the Faculty of Business, Economics and Law at the host institution. The CFYC subjects are designed to provide students with a fundamental grounding in a range of disciplines offered within the faculty, allowing students greater flexibility to transfer between discipline specialisations. Because of the cross-disciplinary nature of these subjects, there were no off-the-shelf textbooks, which are being delivered for the first time in 2013. The subjects were developed through a collaborative curriculum design process in 2012 involving teaching staff, academic language and learning staff, and curriculum designers and it was intended that this collaborative environment would also be conducive to the use and production of OER. Each of these subjects is being developed using active learning principles, using various Enquiry-Based Learning (EBL) designs.

The adoption of reusable, modifiable content from open sources was intended to allow bespoke course materials to be provided to students electronically and free of charge via personal computers and mobile learning devices such as iPads. The production of reusable high-quality learning materials as a contribution to the growing bank of OERs worldwide was seen as a useful by-product of this process that would allow the team to demonstrate the institution's ability and skill in engaging with the broader open education community.

The OpenTab project was funded by the university's Curriculum, Teaching and Learning Centre (CTLC) to employ a senior research assistant as an OER specialist for a period of approximately six months.

Mobile Learning Devices Pilot Project

The name of the OpenTab project represents the union of two ideas – 'open' for OE, and 'tab' representing tablet devices. The project was designed to run in parallel with the Faculty's Mobile Learning Devices Pilot (MLDP) project, which is testing a one-to-one tablet device model with the evaluation of a trial deployment of 103 iPad minis to students and staff in first semester 2013. Outcomes of this evaluation inform the OpenTab project and are also reported in this paper.

These twin projects are exploring the ways that mobile technologies may be able to assist, through their flexibility and ubiquity, teachers and learners to engage in collaboration and communication in an active learning context. The purpose for this approach was that the resources and workflows developed by OpenTab would result in open content that could be accessed using tablet devices. Along the way, the projects have demonstrated practical ways to incorporate OERs in mobile learning and providing staff development opportunities in the context of subject design as well as a forum for discussion of the related issues such as access, equity and affordability of learning resources.

Background

History and definition of open educational resources (OER)

Open educational resources (OER), and the philosophies that accompany them, have been in use for more than a decade now. OER was first formally defined by UNESCO in 2002 (D'Antoni, 2009; Wiley & Gurrell, 2009; Wiley & Thanos, 2013). While there is some variation in the definition of OER (Pawlowski & Bick, 2012; Rolfe, 2012), most advocate for the definition outlined by the William and Flora Hewlett Foundation (2012): "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." ("OER defined", para. 2). OERs are deemed to include open courseware, learning objects, textbooks and journals (Joyce, 2006).

Proponents of OERs highlight the shared philosophies and benefits between open education movement and the

open source software movement (Baraniuk, 2008; D'Antoni, 2009; Wiley & Gurrell, 2009). Opening up source code and educational resources to peer contribution demonstrates the ability of peer groups to improve the quality of reusable resources. In the same way that peer review feedback – a process so familiar in the academic world – contributes to the improvement of published materials, allowing peers to contribute their expertise directly to a software codebase or educational resource leads to an improvement of the code or materials (Wiley & Gurrell, 2009).

Underpinning the OE movement is a commitment to social justice in making education accessible to all (Conole, 2012; Joyce, 2006). Some believe that government-funded institutions – such as universities in Australia, New Zealand and the UK – should be more open with the products of their endeavour, including their published academic articles as well as educational materials. This has arisen out of growing acceptance and expectation of openness, particularly with internet materials (Blackall, 2008). Both the OE movement and the increase in adoption of online teaching methods have been facilitated by the broadening reach of the internet.

When open is not open

The proliferation of MOOCs (massive open online courseware), particularly through 2012, introduced confusion around the definition of open. Long-term proponents of OE highlight the distinction between open *access* (or, more accurately, free access) and what is more widely accepted to be a true definition of open, which Wiley states revolves around the four Rs of OER permissions: reuse, revision, remixing and redistribution (Wiley & Thanos, 2013). Those who equate openness with modifiability argue that the move towards providing free and ready access to materials that have restrictions on reuse and modification conflicts with the intentions of the open education movement (Baraniuk & Burrus, 2008; Bissell, 2009; Blackall, 2008; Hilton & Wiley, 2012). Baraniuk (2008, pp. 230-231) states that resources that can be shared but not adapted are “... merely ‘reference’ materials”, and that such practices “... [stifle] both innovation on the materials and also community participation.”

The growth of open

The move towards openness in education is matched by a trend towards greater incorporation of online teaching and learning in formal education contexts (McAndrew, Scanlon, & Chow, 2010) and greater proliferation of Creative Commons licensing (Rolfe, 2012; Wiley & Gurrell, 2009). While the global applicability of Creative Commons licensing has facilitated a wide adoption of OER, the literature generally reveals low levels of awareness among academics about copyright and open licensing options (Bissell, 2009; D'Antoni, 2009; Rolfe, 2012; Wiley & Gurrell, 2009).

While permissive copyright licensing options have worldwide reach, levels of re-use of OERs are disappointingly low (Hilton & Wiley, 2012), either because OER systems have limited capability to track reuse or because evidence suggests that OERs are being created, but not harvested for modification. Conole (2012) calls for a greater investigation of OER practices, to ascertain ways to address the low usage rates. An OECD report on OER suggests that a lack of institutional policies on OER “is in many cases related to a lack of knowledge and capacity among administrators and academics in terms of OER and, with regard to copyright and [intellectual property] implications, a reluctance to address legal issues” (Joyce, 2006). The OpenTab project sought to respond to these low-usage issues by exploring how OER can be incorporated in the teaching practices of the faculty, and perhaps the wider university community. Reed (2012) claims that “the success of the open content movement is reliant on wide participation and a critical mass of ‘open’ content”, (p. 1). This idea of a ‘critical mass’ of content and participants engaged in OER relies on broad collaboration across academia; what Rolfe refers to as a “positive collegiate culture” (p. 1) which, she argues, needs to be supported at an institutional level (Rolfe, 2012).

Benefits of OER in teaching and learning

The literature promotes a wide range of benefits of OER, such as encouraging lifelong learning (Joyce, 2006), improving teaching skills through resource development and adoption of learner-centred pedagogies (Carey & Hanley, 2008; Conole, 2012b; Joyce, 2006; Rolfe, 2012), reducing costs for students and faculties by reducing reliance on commercial textbooks (Joyce, 2006), improved collaboration between colleagues within and between institutions (Joyce, 2006; Rolfe, 2012), reducing barriers to translation of materials into other languages (Hilton & Wiley, 2012), improving accessibility for vision-impaired learners, and keeping educational resources up-to-date by avoiding lengthy (and costly) publishing processes (Baraniuk & Burrus, 2008; Joyce, 2006). Some equate OER adoption with opportunity to improve teaching skills and methods, as well as the opportunity to connect, share and collaborate with colleagues (Baraniuk, 2008; Petrides, Nguyen, Kargaliani, & Jimes, 2008). What is lacking in the literature, however, is evidence of these benefits in practice, and their impact on student experiences. The OpenTab project team plans to address this as the project develops.

Case studies on using and developing OER

While there exists a range of case studies in the literature (Baraniuk, 2008; Rolfe, 2012; Sapire & Reed, 2011), few detail the process of searching for and using OERs, or developing OERs themselves. However, Petrides and Jimes (2008) investigate how a group of volunteers went about developing OERs for use in high school science education in South Africa. What is notable about this case study is the externality of the project. Rather than the educators themselves developing open content for use in their own teaching, the volunteers essentially set up their own publishing house, mimicking the activities of corporate educational publishing. This model encounters the same problems as will always be faced with external content development, namely those with trialling materials in a live classroom situation. If not developed by educators, it is likely the materials may not be fit for purpose in a real educational setting and will require amendment by educators to fit the purpose.

The shortcomings of this approach supports Carey and Hanley's assertion that it is necessary to have a good "pedagogical content knowledge" in order to develop, or compile, OERs (Carey & Hanley, 2008). Carey and Hanley (2008) extend upon Baraniuk's (2008) ideas on the need for a community of practice, noting that the skills required need to be nurtured within educational institutions. Carey and Hanley (2008), as well as Joyce (2006), highlight the importance of developing institutional strategies that support the use and development of OERs. Bossu, Brown, and Bull (2012) call on the Australian government to provide policy support for OER.

Though each of these case studies has a limited focus, together they provide a fuller picture of the practice of developing, using and maintaining OER, and detail the ongoing challenges of sustainability and institutional barriers to OER adoption.

Pilot study

As described above, this study was conducted in conjunction with the development of a new curriculum for a suite of common first-year subjects across all business degrees at La Trobe University as an environment for the introduction of OERs. The study was intended to discover and highlight the requirements for introducing OER into the curriculum.

Methods

Adopting the broad framework of participatory research as described by Adelman (1995), this study used a combination of techniques to initiate, survey and reflect on practice in order to address effective action.

The project began using desk research focusing on the OE movement – its history, development, progress and possible future directions for the development of OERs. The OER specialist developed a model workflow incorporating quality assurance for the location, adaptation and development of OERs and their deployment to mobile devices based on this work.

Two members of the OpenTab project joined meetings of four multi-disciplinary subject design teams. The OER specialist briefed each of the design teams on the principles of OE, and led a discussion on ways in which OERs could be located and incorporated for use in readings and as supporting materials for assignments. Follow up one-on-one meetings were held with teaching staff to discuss more specific examples for incorporation, to answer questions arising from this work, and to provide any further support.

The project allowed small-scale testing in a situation where we could work on specific curriculum elements. We reasoned that choosing first-year materials as a starting point would improve the chances of finding appropriate OERs.

The OE approach was chosen to fit with the enquiry-based pedagogy already decided upon for the four common first year core subjects, with the idea that students may be encouraged to find alternative sources as part of the case-study based enquiries. The project also provided test bed for a wider roll of the OE approach out across the Faculty.

The MLDP project adopts a combination of techniques to investigate and evaluate current mobile learning technologies, including desk research, a staff and student trial of 103 iPad Minis, field notes on the trial, and a survey and a series of focus groups for each of the two trial groups. A small amount of the data collected during the student survey and eleven focus groups (May and June, 2013) relating to the use of textbooks has been reported under 'Student experiences' below.

Findings and discussion

Staff awareness and attitudes

In a recent discussion paper, La Trobe University's Open Education Working Group reported on the low levels of awareness and skills in using OER among various staff members (Bisset et al., 2013). The findings of the discussion paper reflect the observations from the OpenTab project. Similarly, Rolfe (2012) surveyed staff attitudes and awareness to OER in one faculty at a UK university in 2009, as a means of measuring a benchmark against which to assess the progress of OER within that institution. Many of the issues discussed in Rolfe's findings resonate with the OpenTab project experience, such as ownership of materials and lack of confidence and understanding about how copyright operates.

In the same way that Rolfe's survey initiated discussion among staff about OER, so too did the OpenTab project. One of the project's activities was to provide information sessions to teaching staff about OER – what they are, how they can be used, how they differ from content that is freely available on the internet but under restrictive copyright conditions. These information sessions opened up discussions about using free internet resources, which revealed that many staff equate 'open' with 'free' and were unaware of the key principles of OER as defined by UNESCO or by Wiley's Four R principles (Wiley & Thanos, 2013). For some staff, this was their first exposure to the concept of OER. The sessions provided information to staff about how Creative Commons licenses work within the copyright landscape, both in terms of how to use Creative Commons-licensed work and how to share teaching and learning materials using Creative Commons licenses. This discussion necessitated a brief overview of the workings of standard copyright licensing, and an analysis of the literature on OER suggests was an area of low awareness among many university academics. Staff received this information about Creative Commons licensing with an air of concern over the extra level of work that would be required of them if they wished to locate and use truly open resources. Another important finding from (Rolfe, 2012) is also relevant here, and that is the need for collaboration among academics in engaging in searching and repurposing of OER.

These information sessions were held for a specific group of teaching and academic development staff involved in the curriculum design of the CFYC and aimed to provide information on how OER may be incorporated in the design and delivery of subjects adopting EBL pedagogy.

Collaboration

Regardless of the support provided by faculty staff who specialise in OER, collaboration and input from subject-area specialists is required for OER to be integrated into curriculum design. Joyce states that "working in partnership is essential for the effective uptake and dissemination of OER (Joyce, 2006, p. 12), a claim which the OpenTab experience supports. An OER officer with expertise in publishing and production processes cannot replace the value that subject-area specialists bring to educational resource selection. The most important aspect of collaboration in working on OER is that of skills transference from expert to non-expert – or in this case, from OER expert to subject-area expert and vice versa.

Several attempts were made to initiate collaboration between the OER specialist and teaching academics, but in each instance, teaching workload pressures prevented the progress of any such collaboration. In order to test how a universal process may be applied more widely throughout the faculty and the university, the OER specialist undertook what would normally be the role of faculty librarian to search for and locate OER that teaching staff could assess for suitability for the curriculum. The aim was to map out what steps would be required in the process and align them to the most appropriate role within the faculty (or other areas) to conduct that work in the future. However, lack of time for teaching staff to review the materials located prevented this process from being fully tested.

This study did succeed however in examining the processes and systems used to develop and deliver a new curriculum, uncovering barriers to OER adoption and development (both internal and external) and revealing a low level of awareness of OER and open education practices. The project was successful in reviewing the current practices for the publication of course materials in the faculty. The review also revealed: opportunities to improve understanding of OER and how they can be used and developed; the high impact the curriculum redesign process had on teaching workloads; a lack of time and skills (perceived or actual) for developing teaching and learning materials; and an imbalance between teaching needs and availability of in-house tools to fulfill those needs.

Publisher agreement

At the time of the study, and independently to the OpenTab project, the School of Business was negotiating with four large publishers to provide learning resources for students through a tender process. The final deal struck involved the provision of a set of readings to students by the publisher (at their expense). This process had a direct impact on the outcomes of the OpenTab project, and the door was closed on discussions relating to the use of open content as this was regarded by some staff in the school as not upholding the spirit of the agreement with the publisher. A compromise was reached involving the location of content for a culminating assessment task in one of the subjects. However this idea was later abandoned by the teaching staff due to lack of time.

This episode of the OpenTab project involving the publisher agreement represents an important finding, in that reliance on third parties, such as publishers to provide additional learning resources can often be done at a cost to students (and, by extension, the library), rather than at a cost to faculties and teaching staff.

Student experiences

Early findings from the MLDP Project feeding into OpenTab highlight students' sensitivities to the question of costs and flexibility of learning resources such as textbooks and electronic texts. In one focus group, the topic of the cost of textbooks versus electronic books came up. The context for this comment was that students were in agreement that electronic texts should be cheaper than textbooks.

Student: And if it was more affordable then everyone would buy them, that's the thing. In most of my classes, the majority of people don't own the books. I think every group I'm in it'll be one in three that'll have the actual book that's bought it... whereas if they were really cheap and just electronic everyone would get it because it's so affordable there's no point not having access to it. And you'd be able to access it everywhere rather than having to carry it around. Like I know I always carry my books around and then one time, you know, I actually went to use it and I'd left it at home and again it was so inconvenient, whereas if it was all electronic I'd be able to access it.

This comment may not be surprising given the increasing cost of textbooks, however in the context of the specific subject these students were enrolled in the comment has particular relevance. The publisher decided to only offer the electronic version of the textbook as an alternative (more costly) bundle together with the hard copy. As a result, when surveyed, 86% of respondents in the MDLP project said that they had never accessed the electronic textbook for their subject using their iPad Minis. By comparison, using these devices 29% had accessed e-books and e-journals from off campus, and 42% from on campus. Rather than offering a lower payment model in order to increase sale quantities the publisher opted for a model that did not cannibalise its own textbook.

Study outcomes

Barriers

The study revealed a range of barriers to the use and development of OERs within the Faculty. Internal barriers included lack of awareness, lack of institutional or systemic support for OE approaches and lack of clarity on where materials should be stored. External barriers included the fragmentation of OER repositories, lack of 'openness' of materials (restrictions on reuse, modification and distribution) and sustainability of repositories (changing from free access to fee-for-access models).

The internal barriers are indicative of the wider problem of OER awareness in Australia (Bossu, Brown, & Bull, 2011), despite the involvement of a range of Australian and New Zealand universities in OER, such as University of Southern Queensland and Otago Polytechnic, who are members of the OER University, and other isolated initiatives such as University of Tasmania's Adapt project. Rolfe (2012) and Carey and Hanley (2008) call for an institutional strategy and vision regarding the deployment of OER. It became clear to the OpenTab project team that, in the absence of a grassroots movement towards open educational practices within the faculty, a top-down support mechanism would be required to initiate OER usage within the faculty.

Following the initiation of the OpenTab project, OER was introduced as an area of exploration for La Trobe University's Radical Learning Group, which subsequently recommended that OER be incorporated as part of the university's 21st-century education models (Macken et al., 2012). This created the momentum for a group of staff across a number of faculties and central teaching departments to form the Open Education Working Group, which is addressing wider issues of systemic institutional support for OER and OE practices (Bisset et al., 2013).

The impact that external barriers had on the OpenTab project relate more directly to the sourcing of appropriate materials for inclusion in the CFYC subjects within the faculty. The process of searching for appropriate OER to trial in the project was frustrating. As Wiley and Gurrell (2009) note, quality in OER can be defined in a number of ways, but the true measure of high quality for an OER is its applicability to the specific context for which an educator wishes to use it. Searching established OER repositories for textbook-like materials such as background reading and case studies on the fundamentals of business for an audience of first-year university students proved difficult for a range of reasons. Firstly, it was difficult to locate material of an appropriate level. Often when such material was located, it was found to be restricted by standard copyright protections and therefore could not be modified or distributed. As the project progressed, it became clearer that sourcing usable OERs which were truly open, complete with an appropriate license, was more difficult than the promise of OER had led us to believe. It was an important test, for it proved the reality of the theory we were trying to apply. Eventually, however, some materials were located and sent to a teaching staff member to assess for suitability for use in one of the CFYC subjects. No sooner had that occurred than Flat World Knowledge, where the content was housed, announced that it would be moving to a fee-for-access model for students, which meant the materials had been withdrawn from consideration because free access was a core criterion for the project.

These external barriers provide further evidence for the creation of our own open materials – or the conversion of existing teaching materials to openly licensed materials for wider distribution – as a way to contribute to the OER movement in a meaningful way. Rolfe's study (2012) revealed that a culture of sharing already existed within the faculty, which assumes that original materials already exist which can be shared. There is nothing to indicate that this is not also the case in the Faculty of Business, Economics and Law. A supportive institutional environment is needed to allow for the development of open resources as well as for the assessment of the impact of those resources on teaching and learning practice.

Limitations

The limitations of this study relate primarily to the timing of the OpenTab project in relation to the curriculum design for the CFYC subjects. At the time the OER specialist for the project commenced and the project began in earnest, the formal tendering process for the supply of textbook resources and academic skills diagnostic tools was already underway. By electing to embark on a tendering process, the leaders of the curriculum design initiative had already locked down their options for the supply of educational resources, leaving very little room for OER to be considered as a realistic option. As Bisset and colleagues (2013) and the results of this study demonstrate, introducing OER requires the adoption of a set of accompanying OE practices. Introducing transparency, reusability and participatory collaboration which accompany OE initiatives requires a significant shift in thinking in education design, involving a rethinking of the various elements of education and the roles they play. Introducing OERs into the curriculum design process cannot be done as an 'add-on' feature of education design; it needs to be conceived of as an integral part of the design process. Consideration of fundamental issues such as what form educational resources can take, what role they play in the education process will lead to a reconceptualisation of traditional models of education and it is in that context that the principles of open education can be addressed.

The other significant limitation of this study was the impact of the introduction of enquiry-based learning (EBL) pedagogical model adopted for the CFYC subjects on the curriculum design teams. The incorporation of a new pedagogy into the curriculum design process appeared to have a high impact on the workloads of academic teaching staff involved in the curriculum design. The EBL model was also perceived to have a potentially high impact on teaching workloads in the delivery of the subjects. This perception proved to be a great barrier to the introduction of the concept of OER to the curriculum design teams. In the context of this EBL-based curriculum design, OER were seen to represent additional pressure on teaching workloads, even though one aspect of EBL pedagogy is that students are normally required to locate their own educational resources. The conclusion drawn is that the introduction of the OER concept in the context of EBL curriculum design was felt to be one innovation too many at a challenging time for academic staff.

A greater integration of the OER project with the CFYC design process – including the tender process for publisher-supplied materials – would have helped in developing a unified approach to OER. Greater collaboration between different teams/functions within the faculty could have helped avoid conflicting actions. However, involving more parties in this project could have led to greater delays, as it normally takes longer to incorporate the views of all involved.

Conclusion and future work

It is not difficult to imagine a future for business students involving free and open access to educational resources from increasingly functional mobile devices. However the project described in this paper

demonstrates that making this future a reality will require attention to a number of important issues. Firstly, awareness of the value of OERs, and the details of enabling frameworks such as Creative Commons licensing needs to be addressed with sensitivity to the work involved locating, assuring quality, and adapting resources that are appropriate and relevant. A collaborative approach to undertaking these processes requires the active participation of teaching academics as subject matter experts. Further, support in a systemic sense from the institution is also desirable and quite possibly necessary for successful adoption of an OE approach. A significant barrier was the adoption of a publisher agreement which stymied the incorporation of OERs into the development of the particular subjects targeted by this project. External barriers to adoption have also been noted here, including the fragmentation of OER repositories, the lack of true openness in licensing, and the sustainability of repositories in the longer term.

Despite this, the OpenTab project is continuing to have an impact in the development of new subjects and the redesign of existing ones. Since the conclusion of the first stage of the project, lecturers from other areas have contacted the project group to seek advice on incorporating OERs into their subjects. A new series of Blended Learning Flagship Projects in the Faculty will adopt OE as a principle, and the work of the project will go on through these projects. Finally, the Faculty has adopted an ongoing strategic project as part of its eLearning Strategy that will continue to foster an OE approach across all programs.

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