Do Open Educational Resources represent additional challenges or advantages to the current climate of change in the Australian higher education sector?

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This paper briefly reports on a number of Open Educational Resources (OER) initiatives in Australia, including some government programs and funding, then explores several of the challenges and advantages of adopting OER at institutional and individual (educators and learners) levels. This paper also discusses some of the preliminary findings of a centrally funded research project that investigates the state of play of OER in Australia. This project surveyed the higher education sector and interviewed key stakeholders. According to participants, the use of OER has the potential to lead to new pedagogical practices, can improve the quality of educational learning materials, and promote social inclusion across the Australian higher educational sector. However, there are still challenges to be overcome such as current academic culture, lack of awareness and issues related to finding quality materials. The above could represent additional challenges to the current climate of change faced by the higher educational sector in Australia.

Keywords: open educational resources, advantages and challenges, OER in Australia.

Introduction

Open Educational Resources (OER) represent an emergent movement that is re-shaping learning and teaching in higher education worldwide. Claimed as one technology to be closely consider by higher education institutions, OER are already influencing the way institutions worldwide offer education and market themselves (Johnson, Levine, Smith, & Stone, 2010). In fact, the growth of the open educational trend "is a response to the rising costs of education, the desire for accessing learning in areas where such access is difficult, and an expression of student choice about when and how to learn" (Johnson, et al., 2010, p. 6). In addition, OER has the potential to meet the growing demand for higher education worldwide, and to close the gap between formal, non-formal and informal education (Kanwar, Kodhandaraman, & Umar, 2010; Pereira, 2007). The OER movement "is a technology-empowered effort to create and share educational content on a global level" (Caswell, Henson, Jensen, & Wiley, 2008, p. 2). Since being first coined by 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" 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.

Some of the definitions available are:

- "Open Educational Resources (OER) are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use or re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge" (Atkins, Brown, & Hammond, 2007, p. 4).
- "Open Educational Resources (OER) are teaching, learning, and research materials in any medium that reside in the public domain or have been released under an open license that permits their free use and re-purposing by others" (Creative Commons, 2012).
- "Open Educational Resources (OERs), 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. OERs can, and do include full courses, textbooks, streaming videos, exams, software, and any other materials or techniques supporting learning" (OER Foundation, 2011).

- "Digitised materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research. OER includes learning content, software tools to develop, use, and distribute content, and implementation resources such as open licences" (OECD, 2007, p. 10)

The definition by the Organisation for Economic Co-operation and Development (OECD) also suggested that OERs might also include three separate types of resources:

- Learning Content: Full courses, courseware, content modules, learning objects, collections and journals.
- Tools: Software to support the development, use, re-use and delivery of learning content including searching and organization of content, content and learning management systems, content development tools and on-line learning communities.
- Implementation Resources: These include intellectual property licenses to promote open publishing of materials, design principles of best practice and localization of content (OECD, 2007, p. 30).

It is stated in the WikiEducator online training website "Open content licensing 4 educators", that "there is growing consensus that a definition of OER ideally needs 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).

Currently, many universities around the globe have launched OER projects. Millions of learners have benefited from learning through OER materials, and many educational institutions, including distance education providers, have obtained significant rewards in terms of enhancing their reputations, increasing student enrolment and developing innovative ways to produce distance learning materials (Wiley & Gurrell, 2009). Also, OER have contributed significantly to the proliferation of virtual communities of learning, where students, teachers and experts in their fields can discuss, make contributions and learn with each other through online collaboration (D'Antoni, 2008). However, the OER movement is facing many challenges. It is still grappling with issues such as resistance to giving away information and knowledge for "free"; at no cost and free to use and re-use. Licensing, intellectual propriety and copyright of OER are also matters that remain ambiguous to educational institutions. In a similar fashion, many questions associated with policy development, sustainability and quality of OER continue to be unanswered and under researched. In fact, according to UNESCO (D'Antoni, 2008, p.11), the above concerning matters are listed amongst the 14 priority issues that deserve attention for further development of OERs, with "awareness raising and promotion" being the first priority. Despite these issues, the OER movement is growing and gaining importance within the higher education landscape in many developing and developed nations. However, in Australia there is still a limited number of OER initiatives and programs at higher education levels compared with other developed countries such as the US, UK and some other European countries (Bossu, Brown, & Bull, 2011).

This paper begins by briefly reporting on some OER initiatives in Australia, including some government programs and funding. The authors then explore some of the remaining challenges and advantages of adopting OER at institutional and individual (educators and learners) levels. This paper proceeds to discuss some of the preliminary findings of a centrally funded research project that investigates the state of play of OER in Australia and which surveyed the higher education sector and interviewed key stakeholders. The research findings revealed that there should be greater strategic direction from government bodies and institutions to regulate and foster the adoption of OER in Australia. According to participants, the use of OER has the potential to lead to new pedagogical practices, can improve the quality of educational learning materials, and promote social inclusion across the Australian higher educational sector. However, there are still challenges to be overcome such as current academic culture, lack of awareness amongst educators and learners and issues related to finding quality materials.

OER Movement in Australia

Some of the most popular OER initiatives at institutional level are:

- Macquarie University with its Macquarie E-Learning Centre of Excellence (MELCOE), which specialises in developing open source software tools and open standards for e-learning (OECD, 2007);
- The University of Southern Queensland (USQ), which remains the only Australian member of the

OpenCourseWare Consortium (OCWC) (Bull, Bossu, & Brown, 2011);
- USQ, and more recently the University of Wollongong, are the only two Australian universities members of the OER university initiative (Thompson, 2011);
- The College of Fine Arts (COFA), with the University of New South Wales (UNSW), developed quality video and text resources to assist educators to teach online (COFA, 2011); and
- The University of Canberra RecentChangesCamp2012; an annual meeting of interested Open Space. This free gathering has taken place for the third time in Australia and is focused on wikis and online collaborative practices. "The aims of these events are to draw together people interested in worldwide iterative knowledge involvement or wikis, to discuss and share knowledge, and eat and socialise in a friendly face to face setting" (RCC2012, 2012, para. 1).

Also, a few Australian universities have released some of their teaching materials through iTunesU. Others have created repositories of learning objects. Unfortunately, some of these repositories can only be accessed by the universities' staff and students. Even though some of these repositories support the Creative Commons license, very few allow for redesigning and repurposing of the content, which therefore limits the value of these resources.

In addition to the institutional initiatives mentioned above, there have been programs and policy developments at the governmental level in Australia. For example:

- The Australian Government's Open Access and Licensing Framework (AusGOAL), which provides a set of guidelines "to government and related sectors to facilitate open access to publicly funded information" (AusGOAL, 2011, para. 1);
- The Australian National Data Service (ANDS), which is a database containing research resources from research institutions in Australia (ANDS, 2011);
- The Guide to Open Source Software for Australian Government Agencies, which is a policy that requires that government agencies first consider open source software options when requesting tenders (Gray, 2011); and
- Government 2.0, which is an Australian government initiative focused on the "use of technology to encourage a more open and transparent form of government, where the public has a greater role in forming policy and has improved access to government information" (Australian Government, 2012, para. 1).

Despite the fact that the above Australian government developments are on par with a number of developments in the UK, the US and also in some European countries (Helsper, 2011), they are mostly concentrated on government bodies. The opposite can be said in relation to policies and developments with an educational focus, as Australia seems to be behind the mentioned countries (Bossu, et al., 2011). If the Australian government wishes to take advantage of the benefits of open educational resources and practices, it will need to adopt strategies that take this movement out of the shadows and place it in a more prominent position within the educational mainstream. Such strategies could assist the government to effectively achieve some of its current agenda, such as to increase participation and access to education to a more diverse student cohort, particularly working adults and those residing in rural and remote locations of Australia (Bradley, Noonan, Nugent, & Scales, 2008). However, despite the potential advantages of OER, many challenges remain, as fundamental changes in the higher educational landscape tend to take place slowly and attract many disbelievers. Some benefits and challenges of the OER movement are discussed next.

Advantages and Challenges of OER

Research shows that OER bring many benefits to educational institutions, educators and traditional and non-traditional learners. At institutional levels, OER can assist to reduce costs, improve quality and bring innovation to traditional educational material (Caswell, et al., 2008). Thus, assisting senior managers and educational leaders to lead in the current climate of change across the higher education landscape worldwide. OER can also be used as market tools by making educational resources publically available on the Internet. Other reasons why institutions should consider OER for teaching and learning are:

- They are in line with academic traditions of sharing knowledge and are a good thing to do;
- They enable institutions to give something back to taxpayers by allowing free sharing and reuse of resources;
- It is good for the institution's public relations to have an OER project as a showcase for attracting new students;

- Open sharing will speed up the development of new learning resources, stimulate internal improvement, innovation and reuse and help the institution to keep good records of materials and their internal and external use (OECD, 2007, p. 11).

Educators in general can also take advantage of OER. They can have access to a growing range of resources that can be built and/or used to update and revise existing learning content (Bossu & Tynan, 2011; Caswell, et al., 2008). Most importantly, OER can assist educators to reduce teaching preparation time, avoid duplication and concentrate their efforts on making students' learning a more rewarding experience (Johnson, et al., 2010; Willems & Bossu, 2012). Nevertheless, formal and informal learners can gain the most advantage from the adoption and use of OER because they are accessible; provide learners with flexibility to study anywhere and anytime; at no or low costs; and have the potential to contribute to informal, non-formal and formal education (Bossu & Tynan, 2011; Kanwar, et al., 2010; Panke, 2011; Schuwer & Mulder, 2009). Other benefits for learners are the interaction with content and the sharing of knowledge with other learners, "following personal learning goals and encountering different points of view" (Panke, 2011, p. 5).

In addition, OER can also be used by a whole range of professionals and their employers across different areas as free resources for professional development (Bossu & Tynan, 2011), as well as by governments to meet their current political agendas (Bossu, Bull, & Brown, 2012). Even though OER have the potential to benefit a whole range of stakeholders, from institutions to both formal and informal learners, the impact of OER on the higher education sector is not fully understood yet. In fact, research has shown that little is known about how teachers and learners use, repurpose and interact with OER (Panke, 2011). What is known, however, is that both educators and learners appear to have a limited understanding of OER for teaching and learning, whether formal or informal (Conole & Weller, 2008; Panke, 2011). This seems also to be the case in Australian higher education (Bossu, et al., 2011), which is discussed further in this paper.

The above is not the only challenge that the OER movement faces. Despite the continued growth, success and evident benefits of the OER movement, a range of issues remains unresolved. Some of these issues have existed since the early stages of the movement and are widely discussed in the body of knowledge regarding OER. Other issues have emerged recently, as the movement matures and evolves. Some challenges at an institutional level include copyright and intellectual property policies and a lack of awareness regarding OER. Institutional barriers also include a lack of incentives from institutions toward staff and their use and development of OER (Atkins, et al., 2007; Bossu & Tynan, 2011; Wiley & Gurrell, 2009). In addition, issues "regarding quality control, whether or not to support translation and localisation of resources, how to facilitate access for students with disabilities, and technical issues" need to be considered when developing an OER initiative. (Bossu & Tynan, 2011, p. 261). Many, however, believe that the sustainability of OER initiatives is perhaps the most significant issue for educational institution. Despite the fact that several sustainability models have been developed and discussed in the literature to date, there is no evidence yet of their successes. (Dholakai, King, & Baraniuk, 2006; Downes, 2007; Humbert, Rébillard, & Rennard, 2008; Lane, 2008; Schuwer & Mulder, 2009; Smith & Wang, 2007). As Smith and Wang (2007) point out, for an OER initiative to be sustainable in the long term it needs to create value for the host institution.

Some of the key challenges faced by academics in terms of the use and repurpose of OER include an evident lack of understanding regarding copyright and intellectual property issues, and where to find quality and relevant resources (Bossu & Tynan, 2011). For those who are more familiar with the licenses applied to OER, the adoption of OER into traditional educational contexts would still require academics to "pay attention to a layer of their instruction beyond what is simply pedagogically sound" (Caswell, et al., 2008, p. 8). The non-invented-here syndrome is another problem, as some believe that "material developed or chosen by someone else is commonly judged to be inferior" (McGreal, 2010, p. 3). As for learners, contextual barriers can pose a substantial challenge to the adoption of OER due to different students needs and capabilities (Kanwar, et al., 2010; Willems & Bossu, 2012). Additionally, adequate access to Internet connection, computer skills and relevant OER are all challenges faced by many learners worldwide (Willems & Bossu, 2012). For an OER project to be successful the above and other issues must be taken into account.

It can be seen from the discussion above that there are advantages, but also challenges still to be overcome by the OER movement, which is still in its infancy in Australia. Attention to the issues mentioned above needs to be paid by educational institutions and government bodies in order to appropriately adopt OER in Australia, so they can bring educational benefits to educational institutions, educators and learners.

The remainder of this paper will present some of the preliminary findings on the benefits and challenges of OER of a research project funded by the Office for Learning and Teaching (OLT) titled "Adoption, use and management of Open Educational Resources to enhance teaching and learning in Australia".

The Research Project

This is the second year of a two-year research project. The first year involved a comprehensive analysis of the relevant literature surrounding OER internationally and nationally, the collection of institutional and national educational policies and frameworks that enable OER practices and development. Also, an online survey and subsequent interviews were conducted targeting a whole range of higher education stakeholders across Australia. We are currently conducting a analysis of the data, which will provide the basis of a "Feasibility Protocol" to enable and facilitate the adoption, use and management of Open Educational Resources (OER) for learning and teaching within higher education (HE) institutions in Australia. The Feasibility Protocol will prompt questions and raise issues that need to be considered by institutions wishing to enter the OER movement. With narratives and discussions from the data analysis, examples of practices and literature review, this protocol aims to assist senior executive managers and others to make informed decisions within their institutions regarding how to approach the adoption of OER.

Research Findings

Data Sample

The online survey was distributed to all major higher education organisation mailing lists in the Australasian region. Personal invitations were also sent to the PVC's/DVC's at all Australian universities and to other professional contacts. Each team member also forwarded the invitation to known colleagues within the sector.

The survey resulted in 101 valid responses from across 37 educational institutions, with representation from all states and territories in Australia, and from the stakeholder groups related to this research. There was also a balanced gender distribution amongst the respondents: 48% male and 51% female. The sample also had a good representation of university stakeholders groups, from senior executives (23 participants) to managers (13), educators (28), curriculum designers (14), professional developers (6), library professionals (4) and copyright officers (2).

From the 101 survey respondents, 24 offered to be interviewed. The 24 interview participants were from 18 different Australian institutions. The table below shows the stakeholder groups who participated in the interviews.

Table 1: Stakeholder groups who participate in the interviews

Stakeholder groups	Number of participants
Copyright officer	2
Educator (teacher, lecturer, tutor or trainer)	5
Technologist	1
Other Manager or Administrator	9
Executive (eg. DVC, PVC)	4
Instructional / curriculum designer	3

Current state of play of OER in Australian higher education

The reasonable number of survey respondents have been aware of the OER movement from two to five years (41%) and rated their knowledge of OER as intermediate (51%). However, the majority of participants have rarely or never used OER. As for those who have adopted OER, learning objects have been the most preferred type of resources applied in teaching and learning. Also, most participants declared that they are not involved in collaborative OER initiatives either nationally or internationally. However, they indicated that they would like to be involved in OER activities in the future if the opportunity arises. The lack of adoption and participants' involvement in such activities could be due to the fact that OER practices and initiatives are not included in the current strategic plans of most participating institutions, as declared by the participants. In addition, survey data also revealed that government policies are necessary to regulate the adoption of OER in

Australia and that dedicated OER public policies could encourage the growth, development and institutional adoption of open educational resources and practices across the sector in Australia. Even though the efforts of some individual OER initiatives have succeeded at the institutional level in Australia, as mentioned previously, the movement has expanded faster and more effectively in countries where support was provided at the national level. Particularly in Australia, this support could come in the form of more flexible policies. According to participants, the Australian government should also support higher educational institutions through grants or financial awards to encourage the development of OER, together with a culture of open practices (Bossu, et al., 2011).

As for institutional policies, they were considered an important factor to promote the effective use and adoption of OER. According to the participants, educational institutional should develop policies and activities to promote OER awareness and to clarify issues related to intellectual property and quality assurance. Institutions should also promote and recognise OER initiatives, and this could also occur through financial initiatives. This was also true in studies undertaken in Europe and other parts of the world (OECD, 2007; OPAL, 2011). In fact, many have alerted institutional policy-makers of the existing institutional strategies to the adoption of OER, and that these strategies could be implemented through appropriate internal regulations and guidelines (Atkins, et al., 2007; Downes, 2007; Kanwar, et al., 2010).

In the interviews, participants' level of understanding of OER within the sample group was high, but it must be taken into account that the sample was obtained from volunteers who completed the online survey and were comfortable to be questioned about issues surrounding OER. Thus, this level of understanding was to be expected. Likewise, most of interviewees (with the exception of two) were aware of the Creative Commons licenses. It appeared that many university employees from various institutions were using these licenses, but these practices were not formally endorsed, or were not specified within current policies. Most interviewees (62%) use OER for both personal and professional purposes. It was of interest to note that this usage was not widely adopted in any of their institutions. Very few participants make their resources available, and even fewer specifically create OER. Most respondents were aware of only a handful of colleagues using OER within their institutions. When asked what they thought were the main concerns of those people not using OER the main responses were potential loss of intellectual property, fear of exposure and lack of awareness.

> One concern is that openness obviously exposes poor practice and you won't find many people admitting to that concern but I daresay it is a major concern.
>
> Educator

Advantages and challenges of OER in Australian HE

Advantages
In terms of the benefits that OER can bring to education and training in Australia, the majority (highest to the lowest) of survey participants' views are that:

- Educators can save time and avoid duplication of effort.
- OER can improve the quality of educational learning materials.
- OER have the potential to increase collaboration within an institution and internationally.
- OER help to enhance quality of teaching and learning in higher education.
- An OER project is a good marketing strategy to showcase the institution and attract new students.
- An OER project will raise the international profile of an institution within the global community.

Also, they believe that OER use is a catalyst for institutional innovation (53) and that the use of OER has the potential to lead to new pedagogical practices (44) within higher education institutions in Australia. Interviewees pointed out (62%) that social improvements and "access to education for all" are potential benefits of OER. Other potential benefits identified by respondents include increasing efficiency in time and/or money (50%) and improvement of the quality of teaching resources (42%). They stated that teaching materials undergoing a review process could only improve in quality. Increasing collaboration was also mentioned by over a third of the respondents as another benefit of OER (37%).

> It could provide a built-in quality assurance model. I mean people don't want to put their name to crap, so if they're going to create it, they're going to create it to be reviewed by their peers, so it's going to be good.
>
> Educator

I'm excited about the prospect of sharing resources with other academics and other faculties within Australia and overseas. I think that not only encourages better collaboration, encourage a new way of thinking for academics.

<div align="right">Educator</div>

The total would be much greater than the sum of its parts.

<div align="right">Manager</div>

Challenges
When asked to indicate the potential barriers to the use of OER, survey participants pointed out that the lack interest in creating and using OER and poor quality of OER were considered as important factors by the majority of them. Survey respondents also identified that insufficient institutional support, and the lack of institutional policies to address OER developments, as barriers to the growth of the OER movement, amongst other barriers (Please see figure 1).
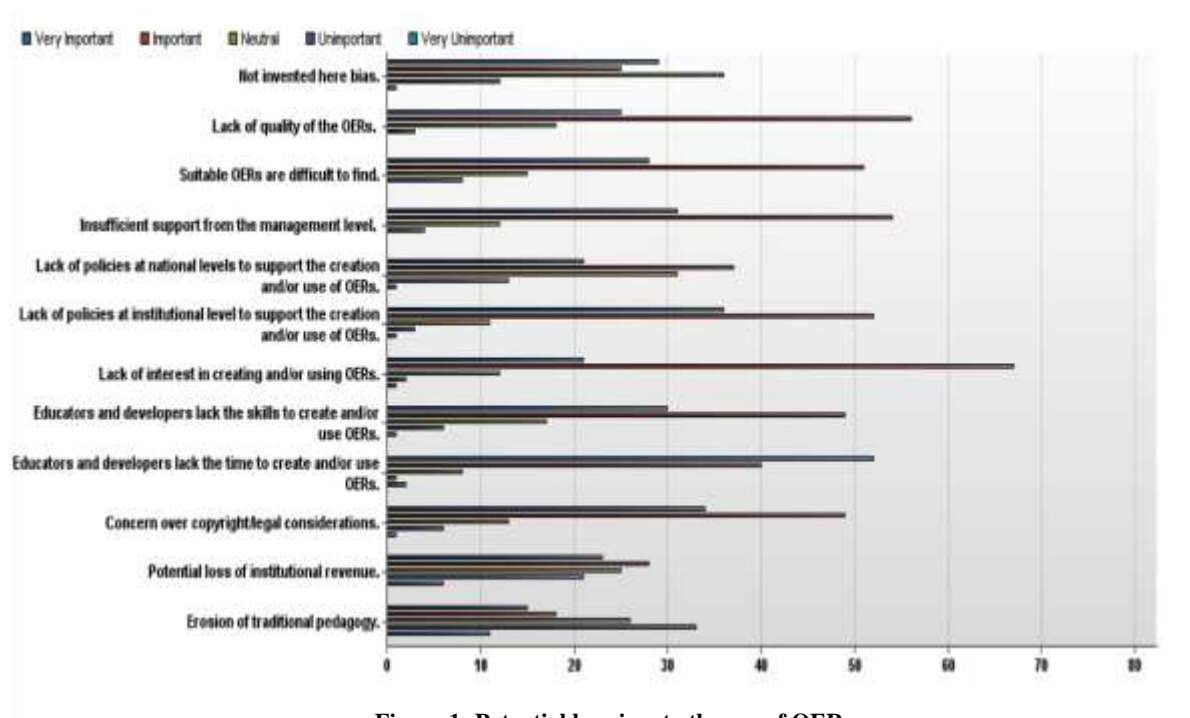
Figure 1: Potential barriers to the use of OER

Common barriers to OER use identified by the interview participants were issues related to intellectual property policies and the lack of a national framework to support these. Problems surrounding quality, current academic culture and lack of knowledge were among the other significant barriers identified. When questioned further, participants stated that limited funding, difficulties in changing academic culture and discoverability of OER were considered to be the major challenges. Several of the respondents suggested that adopting a standardised metadata for OER and/or a national or institutional repository as potential solutions to assist with the discoverability issue. In fact, 70% of the interviewees believed that OER could be more widely used within universities if appropriate support regarding where to find quality OER, and how to use them adequately, were to be provided. Implementing some sort of recognition for those who use/create OER was also identified by 33% as a way to encourage the adoption of OER, followed by the development of policies.

So if I knew there was somebody who was the "go-to person" to ask that would be helpful.

<div align="right">Educator</div>

…someone able to tell staff and teach them about licensing and give them options and all the other little things that you would need to do to embed it [OER] and embrace it more fully.

<div align="right">Director</div>

Discussion and Conclusion

This paper explored some recent OER developments within higher education institutions in Australia, as well as several attempts to make available publicly funded research, resources and government information through federal open access policies. Unfortunately, the adoption of OER within mainstream education in Australia appears to be limited, perhaps due to the lack of educationally focused policies and initiatives, as demonstrated by the research described here.

It can be seen by the findings presented here that some of the advantages and challenges of the OER movement reported in the literature are similar to those raised by the participants in this study. It is interesting to note, however, that even though most participants were aware of the movement, very few actually adopt OER. The lack of OER uptake by the participants could be closely related to their lack of interest linked to their busy workload and lack of institutional support. For academics OER could represent another activity added to their already heavy workloads. In order to encourage the adoption of OER, educational institutions need to provide support and develop new reward systems, where academic staff can receive recognition for their involvement with OER.

However, it is known that fundamental changes in the higher educational landscape tend to occur at a gradual pace and attract many sceptics. Despite the benefits that the OER movement can bring to higher education in Australia, there are still several challenges to overcome. Delay in the introduction of OER in mainstream education in Australia, could slow educational collaboration and innovation. One can then conclude that OER represent both additional challenges and advantages in the current clime of change of higher education sector in Australia.

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