Bringing Open Educational Practice to a Research-Intensive University: Prospects and Challenges

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Abstract: This article describes a small-scale study that explored the relationship between the pedagogical practices characterised as "open" and the existing model of undergraduate teaching and learning at a large research-intensive university (RIU). The aim was to determine the factors that might enable (conversely impede) the greater uptake of open educational resources (OER) in universities of this type. The research was informed by two theoretical frameworks. The first was derived from the literature on open educational practice and served as the basis for an interview schedule. The second was derived from the literature on RIUs and provided a structure for reflecting on the data in three areas of activity: pedagogy, outreach and governance. The researchers conducted semi-structured interviews with 14 academics, selected either for their involvement in open practices or for the recognition they had received for excellence in their teaching. The interview schedule was derived from a literature survey focusing on open pedagogic models. Topics discussed with interviewees included the "flattening" of the teacher-student relationship, students' assumption of responsibility for their own learning, learning as (or in) a community and the possible influence of open practices in research on teaching. Findings suggest that open educational approaches can be accommodated in a university's prevailing pedagogic model without compromising its integrity. However, openness can enhance the specifics of that pedagogy; for example, through aligning research-informed teaching with emergent open practices in research and equipping students with the skills necessary for living and working in an open world. There is a closer alignment between releasing OER and an RIU's strategic mission for outreach. Nevertheless, the spread of open practices in both pedagogy and outreach hinges on issues of governance, which in RIUs is characterised by considerable emphasis on the autonomy of individual academics.

Keywords: open education, OER, research-informed teaching, higher education, pedagogy, digital scholarship

1 Introduction

For more than a decade the world has witnessed the burgeoning of open educational resources (OER): "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" (Atkins, Brown and Hammond, 2007: 4). OER, and their more recent aggregation into massive open online courses (MOOCs), are seen as vehicles for the democratisation of education. The principal intended beneficiaries are learners worldwide, both students in formal education and those engaged in lifelong learning, whether or not they are affiliated to an institution. Following on from an early focus on the practical matters of licensing and technology associated with distributing OER, the level of research was raised in order to embrace pedagogic and institutional issues; for example:

> *Open education is not just about disseminating resources … but also about an opportunity toward broadening and deepening our collective understanding of teaching and learning (Iiyoshi and Kumar, 2008: 439).*
>
> *The boundaries of the debate around open education are increasingly expanding in order to encompass the institutional, cultural and pedagogical implications of adopting an open model rather than retaining focus on the resources themselves (McAndrew and Farrow, 2013: 70).*

Research into the real-life practices of academics within this array of pedagogical, cultural, technical, legal and institutional factors is important in part because, as Harley has observed, "sustainability of open education resource initiatives will be determined ultimately by actual user demand" (2008: 198).

The above observations provided the impetus for a small-scale investigation at the University of Oxford, which is a leading provider of online reusable learning and teaching resources in the UK (many of these can be accessed through its "Open Spires" portal: http://openspires.it.ox.ac.uk/). The purpose of the project was to explore the relationship between *open educational practice* and the academic culture of Oxford in order to illuminate the factors that might be conducive (or otherwise) to greater uptake of OER in teaching and learning in the University. Three research questions were addressed:

- To what extent do Oxford academic staff recognise, in their research and teaching, values and practices that are associated with openness?
- To what extent is their current teaching practice shaped by open practices in their research?
- What constitutes optimal engagement with open educational practice on the part of the institution?
  The design of the study was informed by a theoretical framework derived from the literature on open educational practice. To place the research in a broader context, the project team considered the findings through the lens of the University's function as a research-intensive university (RIU), in particular its distinctive "tutorial" model of individual and small-group teaching led by active researchers.

In reporting the study, this article begins with a survey of the literature on open educational practice, identifying key characteristics which were subsequently built into a schedule for interviewing 14 academics. It then turns to the literature on research-intensive universities in order to outline three areas of activity that are germane to the study: pedagogy, outreach and governance. A description of the research methodology and findings follows, and the article concludes by reflecting on the implications of the findings for those areas of activity.

Note: MOOCs are explicitly excluded from this article for two reasons. Firstly, the remit of the study was to investigate OER only. Secondly, at the time the research was carried out the focus of MOOCs was on learning in an informal context, rather than as a means to supplement formal studies.

2 Literature survey (i): characteristics of open educational practice

The first part of the literature survey explores the basic principles that underlie notions of openness, and then moves on to overviews of openness in teaching and learning, open practices in research and institutional approaches to the promotion of OER.

2.1 Fundamental principles of openness

A strong statement of the basic motivation underlying open practices in education can be found in Atkins, Brown and Hammond's influential report for the Hewlett Foundation: "the simple and powerful idea that the world's knowledge is a public good and that technology in general and the Worldwide Web in particular provide an extraordinary opportunity for everyone to share, use, and re-use knowledge" (2007: 9). For Lerman, Miyagawa and Margulies, this idea should have a specific resonance for the academic community: "Open sharing of knowledge is at the heart of the academic process. For many faculty, it is an intrinsic value, convincingly demonstrated in their teaching and research" (2008: 214).

Although the sharing of knowledge can be traced back several centuries (Peter and Deimann, 2013), technology has made it possible for this sharing to become global. Web 2.0 technologies in particular are seen to support open practices which include new, informal, means of communication and dissemination; alternative peer review models; and a growing recognition of new forms of research output (Scanlon, 2013; Lane and McAndrew, 2010; Veletsianos 2013). In terms of learning, the open sharing of knowledge has facilitated the blurring of boundaries between disciplines; between roles (research and teaching, teacher and learner); between the scholarly community and the lay community; between institutions and the world beyond; between formal and informal learning; and between geographical borders (Iiyoshi and Kumar, 2008 among others). Thus, technological advances are considered not merely to improve or expand current scholarly behaviours, but to transform them (Veletsianos and Kimmons (2012).

2.2 Sharing and reusing OER

In relation to open sharing, the research team was interested in the question of motivation rather than in the legal and technical aspects. Summarising papers by others, Hylén (2009: 139) lists reasons for releasing one's educational resources that include altruism, a desire to stimulate innovation, "a wish to share with others for creative, educational, scientific or research purposes", "the pleasure of being involved in peer production", and enhancement of one's reputation. Beetham et al. (2012) suggest that confidence is a prerequisite for sharing, while Van Acker and colleagues (2013: 179) propose *knowledge self-efficacy* as a predictor: "When teachers believe that their OER has an added value for others, they will be more inclined to share."

It is challenging to research teachers' motivation to reuse OER, since it lies "under the control of the individual and is difficult to measure" (Pegler, 2012: 12). Even so, studies by Masterman and Wild (2011) and Pegler (2012) indicate that reasons for reuse are largely pragmatic; for example, an improvement to the quality of students' learning, the rarity of certain resources and efficiency. Indeed, it is not immediately clear whether reusing resources counts as an open practice since, as Hylén (2009) implies, the altruism of others in sharing their resources openly features little, if at all, in a teacher's decision to reuse OER. Furthermore, the open licence – the attribute that distinguishes OER from other resources on the Web – does not necessarily serve *per se* as a motivator to engage with OER. Lecturers interviewed by Masterman and Wild (2012) appeared to have a low awareness of the copyright conditions governing third-party resources; rather, they operated on a common-sense notion of fair use or, simply, "I need that: I'll use that." In fact, pragmatic and pedagogic factors aside, there would appear to be more motivation *not* to reuse OER. As Iiyoshi and Kumar (2008: 432) observe in relation to reuse in general, "Higher education … places a high premium on originality, whereas adapting or improving another's educational materials is rarely understood to be a creative, valuable contribution."

Thus, there appears to be an asymmetry in the sharing and reuse of open educational resources, despite the OER movement's professed goal of mutuality in their exchange and development (Willems and Bossu, 2012).

2.3 Characteristics of open pedagogic models

Ehlers (2011: 6) offers the following definition of open educational practice: "…collaborative practice in which resources are shared by making them openly available, and pedagogical practices are employed which rely on social interaction, knowledge creation, peer-learning, and shared learning practices."

A number of proponents of openness argue that, for the potential of OER to be truly realised, there needs to be a radical change in current educational practice. Indeed, Geser (2012: 41) argues that "if the dominant model is teacher-centred education – a teacher mediates authoritative textbook or course content and learners digest and reproduce it – the Open Educational Resources will not make for a difference in education. In such a model teachers may download Web-accessible open teaching material to prepare classes, and students may use some content to prepare material for lessons, but this will remain a one-way channel of content provision, in which physical textbook or course content is replaced by digital material." Ehlers (2011: 5) presents an alternative environment, in which "learners are involved [in] the creation of content … teachers are moving away from content centred teaching … learning processes are seen as productive processes and learning outcomes are seen as artefacts which are worth sharing and debating, improving and reusing..."

The ability of learners to discover more information directly has the potential to alter the balance of power around access to knowledge (Casserly and Smith, 2008). The result is a shift in the teacher's role from source of knowledge to mentor or learning advisor (Ossiannilsson and Creelman, 2011), facilitating open educational practices on the part of learners (Schaffert and Geser, 2008). For his/her part, the learner should become "an arbiter of his or her educational needs and desires" (Cape Town Declaration, 2007). This change in relationship is to be acted out within a constructivist model of learning where there is more dialogic engagement between teachers and learners: "knowledge is co-created and facilitated through mutual interaction and reflection" (Ehlers, 2011: 4), and priority is given to learning communities instead of teacher-centred education (Geser 2012). The types of learning activity envisaged in this model should focus on the "development of knowledge and skills required for tackling and solving problems instead of subject-centred knowledge transfer" (Geser, 2012: 38), with the goal of preparing both students and teachers for participation in a knowledge economy (Schaffert and Geser, 2008). Generally, this will demand "an active, constructive engagement with content, tools and services in the learning process" (Geser, 2012: 38); these tools should support collaborative, self-managed learning that allow students to draw from a range of sources of information (Schaffert and Geser, 2008).

A contrary view suggests that openness can co-exist with current pedagogic models. For example, Panke and Seufert (2013) identify several longstanding theories that they consider to be more or less directly applicable to learning and teaching with OER, including Social Constructivism and cognitive learning theories. Beetham et al. (2012: 7) suggest that what might look like a change in teachers' pedagogy may in fact be "rediscovering the specificity of their disciplinary pedagogy through a new lens (content sharing on the open web), rather than discovering … a new 'open' pedagogy." They also propose that, conversely, it might be sufficient for teachers

merely to "adopt those aspects of open practice that amplify their existing pedagogic practices most effectively."

2.4 Open learning

The literature reviewed in section 2.2 suggests that a more learner-centred approach on the part of teachers is a prerequisite to students' engagement with openness in their learning. Characteristics of *open learning* identified in the literature include:

- greater autonomy: students take responsibility for their learning (Ossiannilsson and Creelman, 2011);
- learning through collaborating on "open knowledge-building projects" (Beetham et al., 2012) with other students;
- validating each other's learning by sharing, and giving feedback on, essays and other outputs (Ehlers, 2011; Beetham et al., 2012).

According to Schaffert and Geser (2008), these practices mean that students should demand educational approaches that equip them for employment in a knowledge society; they should propose new tools and services; and they should respect intellectual property rights and use open licensing for their own outputs. This is an ideal; in reality students can be conservative in their approach to learning. Ossiannilsson and Creelman (2011: 376) claim that, as a consequence, "Teachers who use OER instead of lecturing risk being seen as 'not real teachers' and may get lower evaluation results than colleagues who teach more traditionally."

2.5 Open practices in research

The characteristics of open practices in research are summed up by Weller (2011) under the label of "digital scholarship", by Scanlon (2013) as "open scholarship", and by Veletsianos and Kimmons as "networked participatory scholarship": that is, "the emergent practice of scholars' use of participatory technologies and online social networks to share, reflect upon, critique, improve, validate, and further their scholarship" (2012: 768).

A digital scholar displays curiosity about the potential of new digital tools and assembles a *personal learning environment* comprising a repertoire of tools which they continually update as technology evolves and employ for both professional and personal purposes. This blurring of the personal and professional in the use of technology is carried across into the digital scholar's communications and, argues Weller (2011), enables them to be an effective communicator, since revealing personal elements of oneself creates "hooks through which connections are established."

Practising open approaches in one's research (open science) includes openly licensing the methods, data and other artefacts that can enable others to reproduce the results reported. Formal outputs are published through open access routes from preference, and open peer review (Anderson, 2013) may also be favoured. Self-publishing also features prominently: the digital scholar produces a range of informal, non-peer reviewed, outputs to report their work in progress and/or results prior to formal publication e.g. blog posts and tweets (Weller, 2011; Scanlon, 2013). In this way, social media supplement, rather than displace, traditional digital media for disseminating research (Veletsianos, 2013).

2.6 The institutional dimension

A number of motivating factors have been advanced for institution-level engagement with OER. Outward-facing factors include sharing knowledge for the public good, which is seen as a "social responsibility" of the institution (Ford, 2013); and attracting prospective students (de Langen, 2011). Inward-facing factors include opportunities to improve the performance of both students and staff (Ford, 2013) and efficiency: raising the standard of teaching through the wider use of free-to-use third-party resources (de Langen, 2011; Ford, 2013).

Some, including Harley (2008) and de Langen (2011), have identified a tension within producer institutions between creating OER to benefit teaching and learning on the one hand, and creating them as a marketing activity on the other. Dos Santos (2008: 7) observes that "The media discourse of OERs draws on the globalization discourse and widening participation discourse to foster the image of the institutions, their

mission and their role in the society in creating knowledge and a better world" rather than on a genuine commitment to sharing knowledge.
The literature offers a number of strategic drivers for engendering a positive climate towards open practices in teaching and learning, in addition to giving academics practical support to create and share their own OER, and to locate, evaluate and adapt third-party OER. For example, to establish the basic condition for openness – i.e. an appreciation of intellectual property rights – Mackintosh (2012) suggests an institutional open intellectual property initiative. A further option, particularly in research-intensive universities, is to leverage open practices in other academic activities such as open access publishing (Hoosen and Butcher, 2012).

3 Literature survey (ii): Characteristics of a research-intensive university

The second part of the literature survey places Oxford within its institutional "type" – a research-intensive university (RIU) – both to provide a framework for mapping the interview data on open practices to the University's existing pedagogic mode and to broaden the relevance of the study to similar institutions.

Chirikov (2013) identifies three key features of RIUs as follows: a "high concentration of talent" among academic staff and students, "abundant resources" which are prerequisites to innovative research, and governance structures that allow considerable academic autonomy. In terms of the education that they offer, RIUs are characterised by:

- teaching that is research-informed (Spronken-Smith, Mirosa and Darrou, 2014; Zamorski, 2002);
- pedagogies that aim to inspire students to be "curious, driven, responsible and capable of academic thinking" in their capacity as "citizens and leaders of tomorrow" (Mapstone, Buitendijk and Wiberg, 2014: 3);
- a role as "ambassadors for educational outreach and innovation" (ibid.).

The practice of research-informed teaching has been characterised in a number of ways. Spronken-Smith and colleagues (2014) list four approaches to curriculum design intended to involve undergraduates in research:

- research-led: the curriculum is structured around content drawn directly from research, often the lecturer's own;
- research-oriented: the curriculum emphasises teaching the processes of knowledge construction in the subject: e.g. how to think like a historian, chemist etc.;
- research-based: students carry out inquiry-based learning or other activities involving research. This might also involve learning research skills and methods (Zamorski 2002);
- research-tutored: learning is focused on students writing and discussing papers or essays.

Aligning research and teaching in this way has implications for the teacher-student relationship, with institutions becoming "inclusive communities of academics and students as co-constructors and investigators of knowledge" (Lucas, 2007): that is, akin to the open model of co-created knowledge outlined in section 2.3 above.

4 Approach

From the literature surveyed in section 2 of this article the research team developed a conceptual framework of open educational practice. This provided the basis for a semi-structured interview schedule for use with academic staff. Questions relevant to the current article sought academics' perspectives on sharing and reusing both OER and third-party resources in general, open pedagogic models, students' learning in an open world and the influence of open practices in research. Other questions addressed related topics such as the open sharing of pedagogic knowledge (not reported here). The schedule was piloted with three representatives of the target population and subsequently revised.

The overall research design received ethical approval from the University's central ethics committee.

Interviewees were selected using a purposive sampling method, which identified a) academics who were known (from previous research projects) to be already involved in open practices at the University (for example, contributing to its OER collections or being active in open science) and b) academics who were not known to engage in these practices. The latter were identified from staff who had been honoured in a teaching

awards scheme run by the University's student union; it was thought that such individuals would be interested in discussing their teaching even if they had not thought about "open" issues (the data subsequently showed this supposition to be correct).

The interviews were conducted with 14 members of teaching staff from a range of disciplines during autumn 2013. They were audio-recorded and transcribed by the two interviewers. They made *unfocused indexical* transcripts (Gibson and Brown, 2009): *unfocused* in that they created "a record of 'what happened' within a given recording of speech" (ibid.), and *indexical* in that the data were organised in relation to the interview questions.

The data were analysed in two stages. In stage 1, two researchers analysed the transcripts and coded them according to each interview question. In stage 2, the collated data were reorganised by research question and synthesised into narrative interpretations. The research team was interested in the different perspectives that interviewees offered on the topics of discussion rather than in the number of participants who expressed a similar view. The narrative interpretations were circulated to interviewees for approval before the recommendations of the project were developed from them.

5 Interview findings

This section presents findings from the interview questions relevant to the subject of this article. A comprehensive report on the overall project is provided in Masterman and Chan (2015).

5.1 Sharing knowledge and resources

All interviewees believed that knowledge should be open and shared for the public good. Making knowledge open was also seen to justify the existence and functions of a university; for example, "an easy access to decent, well-researched work, robustly defended opinions and arguments is vital to democratic life" (humanities tutor). However, some caution was expressed about the moral implications of sharing knowledge that can be put to harm and about academic competitiveness as a barrier.

In addition to releasing OER for Oxford's collections, evidence was found that individual departments had put learning resources on publicly accessible websites, either for outreach or to make it easier for their students to find the resources when away from Oxford. Participants gave a number of reasons for sharing their educational resources, including helping to stimulate debate in the wider community ("they're thinking about the issues in a way they wouldn't have been doing before, and the more people I can get to do that, generally the better": humanities tutor) and personal satisfaction that their work was valued by a wider audience.

The impediments to sharing identified by interviewees included a lack of recognition for good teaching (as opposed to research), personal disposition (the feeling that one's teaching is personal to oneself), and a sense that teaching at Oxford is personalised to one's students and not readily shareable with the wider community.

5.2 Reusing resources

The interview data suggest that it is common practice in Oxford to reuse third-party materials. For example, a humanities tutor felt that her role entails collating and distilling resources produced by others and adding her own perspective to them, "so it's just part of [a] resource chain, if you like." However, there was little evidence that interviewees actively sought out OER. Indeed, most were unable to identify the characteristic that distinguishes OER from other freely available online resources: namely, the Creative Commons (or similar) licence.

In addition to commonly cited barriers such as the difficulty in finding resources and poor pedagogic quality, interviewees identified institution-specific constraints on the reuse of resources: namely, the higher academic level of Oxford courses (which can restrict the educational relevance of resources) and the focus on students' own thinking.

5.3 The roles of the teacher and the student, and the relationship between them

Discussions about the teacher-student relationship were structured around four statements derived from the literature on open educational practice. These were intended to encapsulate the characteristics of the "innovative" pedagogical models that are claimed to be a logical extension of creating and using OER.

1. a) The teacher's role changes from source of knowledge to learning adviser, and b) The student takes responsibility for their own learning, including what they learn. Interviewees identified these as existing properties of the Oxford "tutorial" model of teaching and learning and learning, in which students meet with their teachers weekly, either individually or in small groups (in addition to lectures, seminars, practicals and other formats familiar to the wider higher education sector). The focus of the tutorial is the exchange of ideas around an essay – or, in the sciences, a set of problems – which each student will have spent the preceding week researching and preparing independently. As a social sciences tutor observed, "The whole underlying philosophy of Oxford is that we advise the students in a tutorial about what they are to go out and learn during the week." One humanities tutor saw himself as "… a researcher who … has a life committed to the production of new knowledge and new ways of thinking … the teaching is driven by research and … they're coming to participate in that; they're not coming to learn from a schoolteacher." Another remarked that, even though students take responsibility for their own learning in the Oxford model, they need to be guided so that they can genuinely take responsibility and learn to select what is worth reading rather than what superficially seems more attractive or relevant to their immediate interests.

2. Knowledge is co-constructed through mutual interaction and reflection between teacher and students. The concept of a partnership between tutor and student and of learning as a conversation "in which learners move towards establishing expertise" (humanities tutor) was also considered a cornerstone of the tutorial model at Oxford. However, despite the less hierarchical relationship, interviewees felt the tutor retains the advantage of deeper knowledge and longer experience in practising the subject. Openness may have given a broader knowledge base to the student, but this is still within "the comfort zone of the senior partner" (mathematics tutor). Interviewees also felt that characteristics such as the dialogic element of learning predate the "open" era by several centuries, and that the contribution of technological innovation and open access to resources has been to broaden the knowledge base available to students.

3. The development of knowledge and skills required for tackling and solving problems has priority over subject-centred knowledge transfer. Interviewees suggested that subject-centred knowledge transfer needs to have a *temporal* priority because students require a base of factual and conceptual knowledge about their domain of study before they are able to think, reason and solve problems in the domain.

4. Students learn primarily from each other, as a community. Several interviewees felt that students learn primarily from their tutor, but in a way that facilitates their learning as a community outside formal classes. However, the competitive culture in the University was considered to some extent as an impediment to students' learning from each other.

5.4 Learning through creating OER

Interviewees were invited to consider the idea of students producing OER as outputs from learning activities and the kinds of learning outcome that would thereby be supported. Only two interviewees made a direct connection between student-produced OER and open practices as a whole. One commented that the teacher's job is not only to share their own knowledge with the student, but also to open the student's eyes to other knowledge which he or she might share. The other made the point that, since students are using the resources and learning from them, they should contribute to the cycle themselves.

A number viewed learning through creating OER as an opportunity for students to develop their communication skills in general, as well as the analytical skills required in their discipline. However, even though students already create online resources, YouTube videos and so forth, interviewees were concerned about the pedagogic quality of such materials should they be released as OER. Several advocated some kind of control mechanism.

5.5 Open practices in research

In questioning interviewees about their research activities, the research team sought to ascertain how far the experience of open access publishing, involvement in open science or engagement with social media in research might have an influence on interviewees' teaching.

The data suggest that this influence is currently still weak. Only a few interviewees appeared to perceive a natural or logical link from openness in research to open practices in teaching: for example, the inclusion of open access journal articles in students' reading lists or the realisation that one can protect one's teaching materials with a Creative Commons licence.

A tutor in the natural sciences thought that two inhibiting factors might be the essentially personal nature of teaching at Oxford and the more rapid turnover in one's research: "you do the research and publish it … then you go off and do something else." In contrast, where one tends to teach the same thing every year (with slight modifications) there is less reason to share materials regularly. A third explanation for the lack of cross-fertilisation, suggested by a tutor in the medical sciences, is that many people active in open science have research-only posts.

In light of Oxford academics' increasing use of social media and Veletsianos' observation that "sharing should be treated as a scholarly and educational practice" (2013: 648), the research team was interested in the extent to which those interviewees who use social tools to disseminate their research also use them in their teaching.

Once again, the cross-over effect appears weak. Of the five interviewees who reported using one or more of the above technologies for academic purpose, only one (a social scientist) stated that he uses them in teaching: he encourages his students to follow him on Twitter. Another interviewee from the social sciences indicated that his blog posts tend to be "slightly arcane" and cover issues that are not directly associated with the curriculum.

The one interviewee who said that he does use social media in his teaching suggested that the activity may also have something to do with the stage of one's career: academics who have tenured posts or who have established themselves in other ways may feel more confident to experiment. He referred in this respect to "a tension between what in an ideal world would be good globally and what is demanded … by your university."

5.6 Engagement with open educational practice at an institutional level

Interviewees generally considered that being "open" as an institution is in keeping with the core philosophy of knowledge as a public good, with Oxford's global responsibility as a world-leading university that holds an extensive archive of resources and with its status as a charitable institution. More specifically, openness can help to counteract an elitist image: "it says 'Oxford isn't this closed place that only privileged people get access to; … it's really getting out there to improve world knowledge'" (medical sciences tutor).

Responding to the question whether Oxford should engage in specific open activities in order to maintain its reputation and to keep up with competitor institutions, a tutor in medical sciences felt that the University should not do so merely for reputational purposes; rather, an enhanced reputation would be an outcome. Other interviewees felt that Oxford should engage with OER order to maintain its profile among competitors.

Discussing the feasibility of a top-down implementation of open practices, interviewees' views fall into three categories:

- the desirability for a mechanism to ensure the pedagogic and production quality of OER released by the University;
- the requirement for practical support to academics for the creation of OER and for legal guidance on intellectual property rights;
- the impact of the University's federal structure (comprising the "central" University and over 40 self-governing colleges) and its devolved model of decision-making.

Within the University's devolved model, decisions are taken at the lowest level appropriate to the matter in hand, in keeping with the principle of academic freedom. Decisions at progressively higher levels –

departments, faculties, divisions and the University as a whole – are made primarily when support is required: for example, where resources need to be allocated. In this way, in the words of one interviewee, Oxford functions as a community rather than as an organisation.

In terms of implementing open educational practices at Oxford, the decision to engage with OER (whether as producer or consumer) therefore lies with the individual academic. However, as one interviewee observed, it is also possible for individual departments to adopt their own policies and release what they feel to be worthy of sharing. Even so, the view was expressed that advice and practical support should come from central teams, as finding the required information can be difficult in a devolved system.

6 Discussion: Implications of the findings for research-intensive universities

This section considers how open practices at an RIU might be influenced or determined by three of the attributes identified in section 3: a research-informed pedagogy, a mission for educational outreach mission, and its governance and institutional culture.

6.1 Mapping openness to institutional pedagogy

To explore the implications for teaching and learning at Oxford, we can position the findings from the interviews within the University's overall research-informed pedagogy. Extrapolating from the four interpretations of research-informed teaching identified in section 3, and from the data gathered in this project on academics' readiness to engage with third-party resources in general, it is possible to envisage potential roles for OER in research-informed teaching that would not compromise its integrity, as Table 1 shows.

Table 1: OER in research-informed teaching. Each approach is illustrated with a quotation from the interview data

Approach:	Examples of student learning activities:
Research-led: "The teaching is driven by research and … they're coming to participate in that."	Read open access journal articles and openly licensed project reports.
Research-oriented: "…guiding a student through your own interpretation of a discipline in order to help them learn their own techniques."	Gain insights into the research process through "work in progress" shared by digital scholars through social media, including blogs. Have opportunities to work with the open source tools used for research in the domain (eg NetLogo for modelling).
Research-based: "Learning to be a good learner is learning how to do research."	Access OER collections containing digitised texts and digital surrogates of artefacts. Take openly licensed courses (including MOOCs) for learning research skills. Receive coaching in open science methodologies.
Research-tutored: "The student leaves the tutorial with a different perspective on the essay which they brought to it."	Take openly licensed courses (including MOOCs) on academic writing and related skills. Produce blog posts as alternatives to conventional essays, thereby extending the possibilities for discussion beyond the tutorial in terms of time and place.

These roles could be instrumental in bringing that teaching more into line with the emergent open practices in research. Furthermore, their use could help students to understand that knowledge is "something *shared*, not something *owned"* (to quote an interviewee from the humanities) and to grasp "the complex and provisional relationships between research and knowledge" (Zamorski, 2002).

To sum up, the overlaps between, on the one hand, Oxford's longstanding pedagogic model of individual and small-group teaching with its view of the student as an adult participant in their own learning and, on the other hand, the ideals of open pedagogic practice, are not necessarily a sign that the University does not "need" OER (i.e. in the sense of solving a particular educational problem). Rather, they also remind us that OER are not "a different *type* of educational material," but "[fulfil] the functions any type of educational material, but with the added benefits of being usable and adaptable without the expense of paying licensing fees or securing permissions" (Glennie, Harley and Butcher, 2012: 287).

The overlaps also call into question the claim that engagement with OER entails radically new pedagogies and, therefore, how far engagement with OER constitutes either a necessary or a sufficient condition for achieving

the four pedagogic objectives singled out in the conceptual framework underpinning the interviews. In this respect, the project findings probably come closest to Beetham and colleagues' (2012) observation that teachers consciously "pick and choose" elements of openness to suit their existing pedagogy. However, interrogating our understanding of the ways in which research-informed teaching is practised in Oxford in the light of open models of teaching and learning makes it easier to identify specific, and relevant, roles for OER.

6.2 Educational outreach

RIUs take their outreach mission seriously; indeed, Oxford's Strategic Plan for 2013–18 specifically refers to "[developing] our globally available teaching resources and collections for our own community, for our distance-taught students across the world, and for learners everywhere." The use of the term "globally available" in place of "open" is significant. While this more cautious approach might be inimical to proponents of openness, it is simultaneously enabling. That is, it may give confidence to academics who espouse the view of knowledge as a common good but are reluctant (at least, initially) to allow others to modify their material under an open licence.

Despite this noble mission, RIUs are not immune to the problems that hamper academics' release of their materials as OER: lack of time and lack of reward. Indeed, one could make the case that the obstacles to individual initiatives of this kind are greater in RIUs, on account of the tensions between research and teaching that invariably result in the privileging of the former over the latter (Geschwind and Broström, 2015). Viewed in this light, the release, as OER, of podcasts from undergraduate lectures or research seminars provides a quick and easy means both to further the institution's outreach mission and to address an aspect of research-informed teaching.

From outside an RIU, the emphasis on releasing OER as part of the institution's outreach mission, coupled with a lack of strategic attention to integrating OER into undergraduate teaching, may give the impression of an imbalance between their production and use of OER. If there is a divide between producer and consumer institutions, then RIUs would appear to conceive of themselves primarily as producer institutions. This can potentially lay them open to the criticisms referred to in section 2.6. More widespread use of OER in teaching, especially OER from other institutions, may not only obviate such criticisms, but can also further equip the universities' own students as citizens in an open world.

6.3 The influence of institutional culture and governance

Implementing pedagogic innovation and promoting global outreach on a whole-institution level (as opposed to grass-roots initiatives by individuals and groups) depend on a recognition of their importance at a strategic level and, therefore, on the existence of appropriate enabling structures. In this respect, releasing OER as a part of an institutional belief in the importance of outreach is less challenging than deploying open resources and open approaches to pedagogy, as these can impinge on the academic autonomy enshrined in an institution's governance.

Although the implementation of the mandate of the Research Councils UK mandate on open access publishing in 2013 could be considered an example of top-down decision-making regarding open practices at Oxford, there are two key points to make. First, the RCUK mandate was a requirement from outside the University; there exists no such external driver in relation to openness in teaching and learning. Second, there are important qualitative differences between an academic's research and teaching activities. Research is public and its outputs are shared as a matter of course (as well as for career advancement), while teaching is more personal: personal to the teacher, to the relationship with the particular student and to a particular context. The ultimate decision whether to engage with OER is, arguably, equally personal.

7 Conclusion

This article has drawn upon interview data with 14 academics at the University of Oxford in order to explore the prospects and challenges in bringing open educational practices into the mainstream at a research-intensive university: that is, to establish an environment where such practices are regarded as normal.

Sharing OER as part of a strategic mission for outreach remains the greatest prospect, as it fits in with a longstanding core value of the University. In terms of a research-informed pedagogy the seeds of open

practice are already present in the reuse of third-party resources, and in resonances between the open pedagogic model presented in section 2.3 and existing approaches to teaching and learning at Oxford. To nurture these seeds entails a two-pronged approach: pragmatic and pedagogic. Pragmatically, the institution has a responsibility to promote, among staff and students alike, an understanding of licensing and what constitutes the legitimate use of third-party resources. Pedagogically, the use of OER can be encouraged in accordance with the University's objective to develop students as "citizens of tomorrow" in an open world and/or to prepare them for academic practice in an open world. However, in doing so OER should not be positioned as a distinctive (and implicitly superior) type of educational material. In terms of strategic direction, longstanding principles of governance will always underpin institutional initiatives. In a research-intensive university where academic autonomy is prized, individual staff will necessarily hold the balance in relation to the outcomes of such initiatives, and differing personal choices may result in inconsistent practices across the institution.

Turning to methodological issues, the conceptual framework at the heart of the work presented in this article was constructed from disparate sources, including "thought-pieces" as well as reports of empirical research, rather than being extrapolated from a holistic repertoire of practices currently observable in the field. This opens up the opportunity to challenge the claims of the open movement from the evidence of existing practice. More specifically, through identifying commonalities between the "state of the art" and the "stage of the actual" (Selwyn and Grant, 2009), it becomes possible to question the extent to which OER constitute either a necessary or a sufficient catalyst for the radical pedagogic change that they are sometimes perceived to herald.

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