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Article abstract

This paper reports on the research findings from a national project examining the issues in creating, sharing, using, and reusing open educational resources (OER) in the context of the development of open education in Ireland. One important aspect of the research was to investigate the potential for using existing institutional research repository infrastructure for the purpose of ingesting, managing, and discovering OER produced by academics. This approach would imply a move from previous strategy around a centralised repository at the national level to a devolved model that relies on institutional research repositories. The opportunities and potential barriers to the adoption of this approach were explored through an online survey and focus groups with academics from a range of higher education institutions (HEIs). Also, a focus group of institutional repository managers was convened to discuss the potential of the institutional repositories with those leading their development. Analysis of the data indicates that the devolved approach to institutions would be possible if the right supports and protocols were put in place. It was acknowledged that research repositories could potentially also serve as repositories of teaching materials, fostering parity of esteem between teaching and research. However, a range of important challenges were present, and alternative solutions emerged, which are discussed in the context of the present and future of online OER repositories.



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Towards a Devolved Model of Management of OER? The Case of the Irish Higher Education Sector

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Abstract

This paper reports on the research findings from a national project examining the issues in creating, sharing, using, and reusing open educational resources (OER) in the context of the development of open education in Ireland. One important aspect of the research was to investigate the potential for using existing institutional research repository infrastructure for the purpose of ingesting, managing, and discovering OER produced by academics. This approach would imply a move from previous strategy around a centralised repository at the national level to a devolved model that relies on institutional research repositories. The opportunities and potential barriers to the adoption of this approach were explored through an online survey and focus groups with academics from a range of higher education institutions (HEIs). Also, a focus group of institutional repository managers was convened to discuss the potential of the institutional repositories with those leading their development. Analysis of the data indicates that the devolved approach to institutions would be possible if the right supports and protocols were put in place. It was acknowledged that research repositories could potentially also serve as repositories of teaching materials, fostering parity of esteem between teaching and research. However, a range of important challenges were present, and alternative solutions emerged, which are discussed in the context of the present and future of online OER repositories.

Keywords: OER, repository, open education, higher education, Ireland

Introduction

The Drive Towards OER Management

For more than a decade the open education movement has continued to gather momentum in higher education, prompted by increasing demands for more flexible education options, developments in technology and infrastructure, and advocacy at the policy level. As part of this movement, open educational resources (OER), defined as “educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes” (UNESCO, 2002, p. 24), has seen exponential growth in this period. The crucial quality of OER is that they are meant to be freely used, reused, adapted, and shared, thus serving as a catalyst for collaboration and shared digital literacy skills across subject disciplines and borders (McAvinia & Maguire, 2011). There is a clear rationale for promoting engagement with OER for the enhancement of teaching and learning; the Horizon Report (New Media Consortium, 2018) on the technology outlook for higher education, identifies the proliferation of OER as a key trend for the acceleration of technology adoption in higher education. With the current emphasis on modernising and transforming higher education, embracing openness and promoting engagement with OER can help to (re)professionalise teaching and learning by enabling open educational practices (OEPs) through effective open pedagogies, and increasing digital capacity through developing the educational technology and digital literacy skills required to create, reuse, and remix OER. However, despite the continued growth of OER, their potential to transform educational practice has not been fully realised (European Union, 2013). Some of the barriers to the effective repurposing and reuse of OER can be traced to the choices around how these are deposited and managed in the first place, as individual OER are often difficult to find. Thus, by carefully planning the way in which resources will be stored and accessed, those producing and releasing OER can work more effectively (Thomas, Campbell, Barker, & Hawksey, 2012). Good practice in the management of OER is crucial for their sustainability as “just ‘sticking it online’ might work for one person but individual approaches rarely scale up to work for teams or organisations” (Thomas et al., 2012, p. 668). Defining a model for the storage and release of OER is dependent on the specific context, motivation, and intended outcomes of OER projects. Factors such as the requirements of stakeholders, sustainability, existing institutional policies and practices, practical issues around technical infrastructure, staff skills and understanding (i.e., librarians, learning technologists, web officers, or academics), workflows for quality assurance, and copyright licensing impact on choosing and adopting a particular approach. As such, there need to be policies in place at the institutional and national level to promote the curation and dissemination of OER beyond the individual responsibility of academics (Cronin, 2017). The section below goes on to describe the particular policy and practice context where this study took place, which informs the research undertaken.

Policy and Practice Context of the Management of OER in Irish Higher Education

The management of OER has been at the centre of developments in Irish higher education for over a decade. Early efforts were strongly focused on the creation of a repository consolidated at a national level, mirroring the centralised strategy adopted internationally (for example in the UK through JORUM, and in North America with MERLOT). Ireland’s National Digital Learning Resources (NDLR) service was established as a pilot project in 2004 by the Irish Higher Education Authority to allow educators in publicly-funded higher education institutions (HEIs) in Ireland to develop, share, and distribute digital teaching and learning resources openly. This project saw the integration of the repository infrastructure with a community portal, bulk upload and asset harvesting tools, copyright

licensing workflows, developmental activities and training to support practices around OER, institutional and national collaborative projects, and events to showcase OER and build an evidence base around their use. The key highlight of the project was the investment in subject networks or communities of practice to support and accelerate the development and sharing of OER across the sector (McAvinia & Maguire, 2011). This centralised ecosystem provided a platform for creating OER, produced from funded digital projects available nationally and internationally, while harvesting and disseminating OER from other national repositories. By 2012, the project had hugely grown in scale, scope, and engagement. However, the centralised model also faced substantial financial and funding challenges: the network of coordinators was resource-intensive; the project remained reliant on recurrent strategic funding, which came under threat following the unprecedented global economic downturn; and it required significant recurring technical investment. Direct financial support for the NDLR was discontinued in 2012 in the middle of severe financial cutbacks across the HEI sector.

In contrast with the centralised approach taken to the curation and dissemination of teaching and learning resources, the development of open access in the research context in Ireland followed a devolved model from the outset. Institutional repositories were established in Irish universities from 2007 following a national movement that ensured their interoperability using common metadata standards. Quality assurance protocols are applied by each institution to comply with distribution and copyright requirements of original publishers. These repositories aggregate all the institution's open access publications in one place, disseminate and communicate research outputs globally, preserve intellectual output, and operate as a de facto university open press/publisher for a worldwide audience. This distributed service in turn becomes a virtual database composed of a user-defined set of cooperating databases on a network. This way, the institutional repositories permit disseminating research output through a non-commercial channel that has a professional look and feel and provides researchers with a showcase for their research on a global level. In addition, a national harvesting service named RIAN (www.rian.ie) was formed, aiming to harvest in one portal the contents of the institutional repositories of the university libraries, in order to make Irish research material more freely accessible, and to increase the research profiles of individual researchers and their institutions. To date, the portal showcases almost 80,000 research outputs that include a wide range of material defined by each institution as recognised research outputs, ranging from journal papers to music videos.

As part of its enhancement and transformation agenda, the National Digital Roadmap recommends developing and implementing open education principles and practices for Irish education that align with emerging international practice (National Forum, 2015). To enact this recommendation, the National Forum proposed a system-led action around a devolved approach to OER management that relied on hosting teaching and learning OER in existing research institutional repositories. This proposed use of existing institutional repositories of research for the curation and dissemination of OER represented a departure from the previous centralised approach. The initiative implied the expectation that library managers and educational developers at the institutional level would liaise with academics to promote sharing of digital teaching and learning resources to their own local repository, which in turn would be connected at the national level and disseminated under the principles of open education. As a follow up from this recommendation, this investigation aimed to explore how the digitised teaching and learning resources could be ingested, managed, and discovered using local repositories. As the National Forum currently works to rearticulate a national vision for digital teaching and learning, which is collaborative, responsive, and adaptable to institutional contexts, the findings presented here come to inform its future decisions around a mechanism for compiling and sharing open resources related to

teaching and learning. Although the international trend towards management of repositories at the institutional level, and the popularity of the hybrid repository model that combines teaching and research outputs has been reported (Santos-Hermosa, Ferran-Ferrer, & Abadal, 2017), the international literature has not fully explored the perceptions of the stakeholders involved in such enterprises. Importantly, while the global open education movement strives toward openness as a feature of academic policy and practice, given the disappointingly low level of awareness in institutions, it is crucial to explore the voices often unheard, those of the teachers and professional service staff with whom we are engaging (Rolfe, 2017). This investigation is relevant to an international audience as this approach to OER management represents a departure from the OER-exclusive, central repository model which has been reflected by developments elsewhere (e.g., since the retirement of JORUM), and because it gives a voice to all those involved.

Methods

In investigating the research question, it was recognised that the methodological approach should integrate the views and suggestions of all stakeholders, namely, higher education academics, librarians and library managers (especially institutional repository managers), educational developers, and educational technologists, and should integrate historical developments around OER management in Ireland. This was envisaged to provide a wealth of perceptions from the specialist insight knowledge to the more generic, community-based views informed by academic culture and practices. Therefore, a mixed methods approach was taken in order to collect quantitative and qualitative data that could be triangulated to provide rich and contextualised insights and understandings. The methodological approach included a survey of higher education staff through an online questionnaire; three focus groups with a mix of academic staff, library staff, educational developers, and educational technologists in three different geographic locations; and a specialist focus group with key informants who had responsibility for the management of their institutional repositories. The research project was ethically approved, and the collaborating institutions acknowledged this approval. In order to allay any possible concerns about participation, an information and consent form was included at the beginning of the questionnaire, and also at the beginning of each focus group. The forms described the project, the intended use and storage of project data, and assured confidentiality and anonymity. Each of the elements of the investigation are described in detail next according to the stakeholder group.

Multi-Stakeholder Survey and Focus Groups

A mix of survey open and closed questions was developed, informed by the project remit and the ongoing literature review, in order to investigate the potential role of repositories in general, and institutional repositories in particular, in the management and sharing of OER, including motivations and barriers to use. The survey aimed to canvass the perspectives of academics and other higher education stakeholders such as educational developers and technologists. The survey was distributed online (with a link thereto from the project website) through a designated list of contacts in HEIs, who shared the call for participation with staff within their institutions. Attention was also drawn to the survey through network lists, institutional newsletters, and social media. Of the total of 192 complete responses to the questionnaire, the majority were lecturers in full-time lecturing posts, with a normal distribution in terms of age, but female respondents outnumbered males 3 to 2.

With the research question in mind, a set of questions/discussion topics were also developed for a total of three focus groups which were organised by team members in different regional locations. Those with an interest in and knowledge of OER and institutional repositories were targeted for participation with mixed representation of academics, librarians, educational technologists, and technical ICT services staff. These discussions were anticipated to exploit the diversity of the groups, highlighting coincidences and divergences around expectations, and raising ideas for how OER might work at institutional level. Eleven staff from institutions in the Limerick region participated in Focus group 1. Focus group 2 had 16 participants from six institutions in the Dublin region, both public and private. Focus group 3 had eight participants, all from the same institution in the western region.

Analysis of open-ended responses in the survey and the transcribed recordings of the focus groups was through thematic analysis (Braun & Clarke, 2006). Data were reviewed following Braun and Clarke's (2006) six stages (familiarisation with the data, generating initial codes, searching for themes, reviewing themes, defining/naming the themes, and writing the analysis). The findings of the qualitative analysis of focus groups are presented and discussed below.

Specialist focus group. All institutional repository managers were invited to attend a focus group which reflected representation from the University sector, the Institute of Technology (IOT) sector, and the private colleges in Ireland sector. Seven of them attended, and in addition, two experts in open access and repositories, who had past experience with the NDLR, also participated. One university institutional repository manager declined to attend, but wished to register opposition to the recommendation of using institutional repositories for curating OER for the record. The discussion occurred in this focus group was recorded, transcribed, and thematically analysed for discussion here.

Results

Multi-Stakeholder Perceptions

Survey results. The questionnaire data revealed mixed levels of awareness and usage of repositories to start with. Just under half of respondents (49%) used their institutional repositories to share their research outputs, or access research outputs deposited by their colleagues. Those 98 (51%) respondents who did not use their local repositories were asked to specify why. Following thematic analysis, almost 60% (59) of respondents declared not to have an institutional repository (as is the case in many private colleges), was unaware of whether or not their institutions had repositories, or were not sure what a repository was. Of the remaining respondents, 13 said that the local repository was not of value/relevance for their subject, 11 respondents cited a lack of time as the reason for not using their local repositories, seven people indicated that they were not researchers or did not have time for research (hence they had no need to use repositories), three people stated that their part-time status was a barrier to usage, and finally, three people gave reasons relating specifically to the quality of the material deposited in repositories and their organisation.

When asked whether or not they thought their institutional repositories were appropriate for sharing OER, results were split down the middle with 51% viewing their institutional repositories as appropriate and 49% as not appropriate. When probed further for reasons as to why, a large percentage stated that this question was not applicable or that they did not know enough about repositories to answer. When these were excluded from analysis, together with answers that were not relevant, there were just 10

answers remaining on the “Yes” side and 26 on the “No” side. The 10 reasons (from 5% of respondents) given to support the premise that institutional repositories were suitable for educational resources included ease of access, sharing and collaboration, and raising their own profile. For example, one of the respondents stated that: “It is a means to marketing and attracting growth, cross fertilisation and collaboration, thereby ensuring a broader perspective on educational relevance and application of material.”

The 26 reasons (from 14% of respondents) given for the view that repositories were inappropriate for the sharing of educational resources included: other more flexible platforms available (7); lack of visibility and critical mass (7); the need for research and teaching outputs to remain separate (3); and other concerns such as lack of culture of sharing and the need for quality control.

Just over half (102; 53%) of all respondents provided reasons as to what would motivate them to share their educational resources in their institutional repository. Thematic analysis of these answers revealed a wide range of themes, including altruistic motivations (19), recognition/credit/profile raising (11), collegiality and opportunities for collaboration and networking (9), and reciprocity (8), followed by other motivational factors. Likewise, when asked to state what might deter them from sharing resources in their institutional repositories, if that repository was made available for OER, 58% (112) provided responses in all. Thematic analysis revealed the main concerns to be loss of control/ownership/intellectual property (42); repository functionality (20); time (17); lack of confidence in resources/fear of being ‘judged’ (15); lack of quality control (9), and lack of participation/reciprocity (5).

Focus groups results. The thematic analysis of the discussions that took place during the focus group largely aligned with the results of the open survey, while delving deeper into these mixed understandings of OER repositories in general, and local institutional repositories and their suitability for hosting OER, in particular. However, those who were more experienced in OER use and production were also able to provide more historically contextualised views that were informed by their own and their colleagues’ practice. In some cases, they had taken a more flexible approach that had moved away from repositories towards the use of broader reaching social media tools, or their own professional networks: “Over time I’ve used repositories less and relied on my learning networks...with Creative Commons licenses”; “The concept of a repository is gone. It’s more about branding something within the open web environment e.g., a YouTube Channel”; and “I just put a skeleton of my course on [the Virtual Learning Environment] and share content through my WordPress blog.”

There was however one respondent, who had been involved in the NDLR project, that made a case for the use of repositories: “It takes an awful lot of time and energy to create any kind of learning object and for me the credibility and safety of the repository that I’m going to upload it to is really an overriding factor.”

In relation to the proposed use of local institutional repositories and their suitability for hosting OER generated, again, some ambiguity in that not all people knew about them or knew whether they used one or not. One participant stated that a positive aspect of purposing these repositories in such a way would be that: “It would ensure that material has proper licensing/copyright etc., because they don’t accept stuff unless it’s done properly.”

Some participants saw it as a way for those new to sharing to start sharing teaching practice, as a precursor to sharing in the open, with some protections not offered in Web 2.0 platforms: “They could say that you can’t have stuff in your teaching portfolio unless you put it in the repository” and “Some people may not be fans of the YouTube environment ... may prefer to share in a different space.”

Interestingly, one of the academics seasoned in using OER saw potential in the suggested proposal as a possibility to curate at the institutional level resources already shared openly, with the repository acting as a corridor to the web: “They might already exist as OER and just the links can be in there. Because I’m just thinking... anything that I produce is out anyway with a Creative Commons licence so it wouldn’t actually reside in there.”

Finally, one other participant further highlighted this potential for the institutional repository to serve more as a profiling tool than a learning warehouse by paralleling OER curation to that of research outputs: “It’s the same situation with research papers that are published: they are out there in the journals’ websites. So it’s sort of like a way of validating or proving it for the university.”

Specialist Focus Group

Given their specific expertise and experience, the focus group organised with institutional repository managers provided the most in-depth and informed data around the research question. In general, the group felt that technically, learning resources could be accommodated in so far as they could be taken into repositories—the storage capacity existed. This does not mean that technical difficulties were not expected. For example, multi-object OER present specific challenges for storage, editing, and re-purposing; however, most of the participants were at least potentially open to the proposed innovation. As one participant expressed: “It could be quite exciting if you were given the tools to do it...you could do something really new, experimental, and amazing. But it can’t be done easily.”

The participants in this group were aware of the challenges to OER reuse when educational design is invisible, which has been widely acknowledged in the literature (Wiley, Bliss, & McEwen, 2014). Drawing on the NDLR experience, it was recognised that teachers can benefit from peer observation and the contextual pedagogical information around OER, especially when these are accompanied by metadata on the original context in which it was produced, the circumstances for which it was created, how it worked, what learning outcomes it serves, etc.

A second area that was discussed by participants as having potential for exploration was that of research-led teaching. Members of the focus group acknowledged a growing divide between teaching and research and felt that OER could well be a way to bridge that gap. Research-led teaching is an aspect of strategic planning in every HEI in which it is very difficult to track to key performance indicators that demonstrate progress. Participants hypothesised that if OER were linked to research resources, then a structure could be established for them. This could be a potential way forward and help libraries to accommodate OER materials. As data sets are being brought into repositories, so OER could be a type of “associated material” to evidence the impact of research in teaching practice. It is potentially possible for institutional research repositories to support broader changes in the culture of institutions around how scholarly work is communicated, and perhaps how such repositories could include all scholarly output and communication.

Overall, it was discovered that participants supported the possibility, in principle, for different reasons, but also had serious concerns and considerations which we will expose next.

Questions of quality. Much of the discussion revolved around the differences between research resource and learning resource management environments. Libraries have been dealing with research outputs in a research environment for a very long time. There is a huge amount of flux in the research sphere, but it is one where libraries know what they are dealing with—there is a culture within libraries of managing these resources. There are clearly defined definitions for peer review, copyright, and quality control. On the contrary, participants felt they do not have such concrete guidelines around OER or when a resource has reached a quality that is acceptable for sharing. One participant stated that we are “one hundred years behind” with OER, and that a shared definition is needed, as well as an agreement on where they fit, so that libraries can begin to archive OER in a systematic way.

Participants expressed serious concerns about quality and branding issues, though one participant said he “would not be as concerned about quality as copyright.” While people uploading OER to a repository might well have invested time and effort in their creation, this might not always be the case. If an institutional repository was intended to showcase the outputs of an institution, then quality assurance was important, not just for academics, but for the institution itself: “The only way I could ever see OER in my repository would be if they...have been through a rigorous peer review process and are the best of the best.”

Repository managers have been seen as neutral facilitators of the curation of research outputs, deferring to academic colleagues to decide what is acceptable, while there is no equivalent peer review system for OER. Moreover, participants feared that opening to OER curation could further recall the myth that institutional repositories contained a lot of non-peer reviewed materials. Therefore, participants called for a credible quality review system for OER intended for research repositories, perhaps even a system overseen independently of institutions.

Resourcing. Analysis of the rich discussion in this focus group signalled the significant resourcing issues that would arise if a devolved model of OER storage using institutional research repositories were to be pursued. The use of the repositories could not be automatic; planning, development, research, and training would all be required with their attendant expenses. Institutional repository managers reported that they were already working with drastically reduced budgets and very small teams of staff. The fundamental differences of dealing with dynamic OER, instead of archiving research, would have very practical implications for their workloads. It was noted that NDLR’s reliance on recurrent annual funding had been a vulnerability, and all stakeholders would need to have some guarantees that a similar service was going to be sustained. Advocacy of the repository for OER would also be necessary and the project would require leadership. At the national level, funding would be needed to develop appropriate metadata to facilitate access to OER across the institutional repositories (as is the case currently with research and the RIAN umbrella service).

About the recognition of teaching outputs. Participants felt that it remained “a full-time job” to persuade academics to upload their research outputs into the local repositories. Recognition within an evaluation system, both inside and outside the university, provides a rationale for supporting and accommodating research outputs. To encourage OER to be successfully curated through institutional repositories, a system of recognition should be built into institutional strategies, commitments, and reporting structures. This links to a wider issue around the recognition of teaching and learning outputs in higher education, and the need to achieve parity of esteem with research. It was pointed out that historically, there has been a long tradition in Ireland of professionalising research, and by implication, teaching resources would have to be produced in a professional way. The

participants reminded a major lesson from the NDLR experience that training and support was key to enable staff to feel comfortable about sharing their resources in the first place.

In summary. Given that the members of this focus group were people working for over a decade in the development of institutional research repositories, their understanding of the issues involved was detailed and clear. They stressed that their progress so far with the institutional open research repositories has required a positive and proactive stance. Their views were expressed from this perspective, but nonetheless showed the complexity and challenge of deploying research repositories to meet different objectives. Research repository managers were not averse to the idea of accommodating OER in principle, provided that the process was properly resourced and planned. There needed to be an element of experimentation to design the best model, and the same model may not necessarily suit every institution. The perceived quality problem, with insightful comments from institutional focus group participants, would be a major stumbling block for institutional repository managers. Other concerns included the ambiguity around the definition of OER, sustainability issues, and the fit between institutional research repositories and the needs of potential OER repository users. Therefore, in summary, participants felt that the culture of an institutional research repository is very different to that of a teaching and learning resource repository. The former was set up for a very specific purpose, which is to preserve and disseminate the research output of the institution. Different sets of processes and support skills are required for the latter, and “there would be an element of square peg/round hole retrofitting.” A considerable amount of work and investment would be required to produce a common metadata standard so that learning objects could be discoverable across repositories, and clearly such a project would need to be properly scoped and resourced. In summary, all participants agreed that “just because the infrastructure exists does not necessarily mean that it is the best place for OER to reside.” The participants also highlighted that academics were already using resource sharing Web 2.0 tools independently, and that NDLR was perhaps an early indication of a move away from repositories for teaching resources in general, and towards the open web. Overall, the rationale for supporting the accommodation of OER in institutional research repositories, which have a long-established history and a very different culture to that of learning resource repositories, was seriously questioned.

Conclusion

The most recent Horizon Report (New Media Consortium, 2018) on the technology outlook for higher education, affirms that initial advances in the authoring platforms or curation method of OER are now overshadowed by campus-wide OER initiatives. However, the complexity of these campus-level initiatives has not been covered in the literature. This exploratory research has contributed to this gap with a snapshot of issues around the scoping, development, evaluation, and sharing of OER in the Irish context around a proposed model for OER management at the campus level. A few study limitations need to be highlighted as caveats for interpreting findings and recommendations. The first relates to the specific focus of this research project: the OER field of study is a fledgling but vast one with many calls for more research and deeper investigation. In this study, the focus was on providing an overview of key issues and an exploratory empirical investigation. A second limitation refers to the wide scope of institutions considered in the study. It is acknowledged that each institution has its own unique learning mission and goals regarding the type of education each is attempting to provide and the type of learning design that best meets these goals. It is acknowledged, therefore, that not all aspects of this study will be relevant for all institutions. Also, findings must be considered in the context of the methodological

limitations inherent to self-selected survey responses and focus group participation. The project study sample is not necessarily representative and does not support generalisations. There are many other groups whose views on OER could have been collected in this study to gain a more balanced and comprehensive understanding of issues around OER in higher education (e.g., students, teaching team and subject coordinators, and management staff). Though participants were self-selected, it likely that early adopters and champions are over-represented. This exploratory study therefore provides a first snapshot of the complex reality and dynamics involved in the proposed use of existing institutional infrastructure for a novel application around OER that can be investigated and discussed further.

Move Away From Repositories?

A move from formal use of repositories to less formal online communities and networks emerged in the focus groups in this research. Indeed, the argument for letting sharing and reuse happen via the web in a more organic way has gained great momentum given the proliferation of Web 2.0 tools. Many free, open, flexible, and widely adopted platforms are now available online, and sharing of resources (whether OER or not) widely occurs across these platforms and on personal Web spaces. For example, it is interesting to note that in a special issue in this journal specifically devoted to the implementation of OER, repositories were not mentioned (Hilton, 2017). Moreover, Allen, Browne, Green, and Tarkowski (2015) argue that current platforms that enable the management, discovery, use, and reuse of open content are inadequate and not very well-known, and repositories are varied and generally do not include common search terms or metadata. Also, although currently most repositories of OER provide some kind of facility to accommodate community engagement (Santos-Hermosa et al., 2017), it is unlikely that this engagement transcends the OEP community. However, moving away from repositories raises a question in relation to the management of OER. Putting a resource online might work for an individual academic but such individual approaches rarely scale up to work for teams or organisations. As well as scaling issues there are sustainability issues to be considered. The use of *referatories*, reference systems or special platforms that enable users to rate, tag, and describe resources is proposed as an appropriate alternative (Heinen, Kerres, Scharnberg, Bles, & Rittberger, 2016). These types of services allow users to find references to OER in many repositories, and even can include references that were not explicitly published as learning materials but can be used as such.

Potential of a Blended Approach to Repository Use

The findings of our study point to alternative management approaches that could be investigated. There is certainly scope to consider a blended approach to repository use, which could include the use of reading-list like management software, the capturing of links to resources stored elsewhere online, and the linking of learning resources to research resources. Cohen, Reisman, and Bied Sperling (2015) advocate providing spaces in repositories for enabling personal expression as a facilitator for adoption of OER, so there is obvious potential to harness the energy and enthusiasm of staff currently engaged in OER use in order to showcase samples of their best ones. The capturing of "excellent" OER from all staff could be self-managed via individuals' teaching portfolios, e-portfolios or online presences, and fostered through relevant national or initiatives, such as teaching fellowships or excellence awards.

OER Within Educational Context

Our research has indicated that OER use, re-use, sharing, and creation are not ends in themselves. They are only useful if they result in teaching practices and learning experiences that are more effective than those without them. In this line, Wiley and Hilton (2018) even propose a new term, "OER-enabled pedagogy," defined as the set of teaching and learning practices that are only possible or practical in the

context of the permissions that are characteristic of OER. In Ireland, such approaches could be embedded with the introduction of the National Professional Development Framework for staff teaching in higher education (National Forum, 2016).

The Larger Issue of OEP

In an indirect way, the survey and focus groups conducted in the process of this investigation contributed to increasing awareness of OER as evidenced in comments, and at the same time identified several OEP champions. However, there is little evidence to suggest that OER are understood, let alone valued, in the wider higher education community yet. Ultimately, in the context of the enhancement of teaching and learning, any OER initiative should have an OEP component, which includes practices that support the reuse and production of OER through institutional policies, promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning paths (Ehlers, 2011). Policy change and strategic buy-in is crucial in the institutional journey as it can be an indicator of OEP maturity and provides clear evidence of a commitment to changing practice, which ultimately supports sustainability (Abeywardena, Karunanayaka, Nkwenti, & Tladi, 2018; Cronin, 2017). Given the low levels of awareness and understanding of openness in higher education in general, national and institutional policies need to place greater emphasis on OEP, and open education more generally. Such policies need to be integrated with teaching and learning strategies and policies. Widespread adoption of Creative Commons licensing and the sense of public ownership of resources and content developed with public monies is helping to foster openness, but ultimately any proposed OER-related policy intervention is mediated by an institution's existing policy structure, its prevailing social culture, and academics' own agency (Cox & Trotter, 2016). Thus, it is important that lecturers get support to engage in open education beyond technical support and training, as evidence has shown that support mechanism related to time allocation for the development of open education, and its recognition for career development are uncommon (Castaño, Punie, Inamorato, Mitic, & Morais, 2016).

Some Final Comments

The next number of years will probably see greater importance attached to OER sets and to the educational context where these are used, moving away from OER as individual 'nuggets' which are often difficult to find (New Media Consortium, 2018). Ultimately, we have learned that issues around OER management are much broader than the question of infrastructural digital capacity, and concur with Rolfe (2017) that adopting critical approaches to gain a deeper understanding of the philosophical and pedagogic stances within institutions is crucial. More exploration is needed in order to find the best model for each institution (Cox & Trotter, 2016). There is also a strong rationale for a more in-depth understanding of issues that includes policy makers involved in implementing institutional OER strategy, academics who use OER, academics who have not yet used OER, and students. Importantly, more qualitative (and quality) work is needed with academics "at the chalkface" that poses special emphasis on discipline pedagogies.

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