

Factors shaping lecturers' adoption of OER at three South African universities

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Summary

The research presented here focuses on understanding the obstacles, opportunities and practices associated with Open Educational Resources (OER) adoption at three South African universities. It addresses the question: Why do South African lecturers adopt – or not adopt – OER? In trying to answer this, the authors also attempt to identify which factors shape lecturers' OER adoption decisions, and how lecturers' institutional cultures influence their OER use and creation choices.

This study employed a qualitative research approach through in-depth personal interviews with 18 respondents at three different universities which together broadly represent the characteristics of South Africa's university sector. Unique analytical tools – the OER adoption pyramid and OER adoption readiness tables – were developed to help with analysing and synthesising the data.

Findings indicate that whether and how OER adoption takes place at an institution is shaped by a layered sequence of factors – infrastructural access, legal permission, conceptual awareness, technical capacity, material availability, and individual or institutional volition – which are further influenced by prevailing cultural and social variables.

This study has value and application for researchers and institutions pursuing an OER agenda, policy-makers seeking tools to assess OER readiness in institutional contexts, and funding agencies aiming to boost institutional OER engagement.

The dataset arising from this study can be accessed at:
<https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/555>

Acronyms and abbreviations

CC	Creative Commons
CILT	Centre for Innovation in Learning and Teaching
HEI	higher education institution
IP	intellectual property
OER	Open Educational Resources
ROER4D	Research on Open Educational Resources for Development
TESSA	Teacher Education in Sub Saharan Africa
UCT	University of Cape Town
UFH	University of Fort Hare
UNISA	University of South Africa

Introduction

This study investigates lecturers' adoption or non-adoption of Open Educational Resources (OER) at three universities in South Africa, seeking to understand their motivations and practices regarding OER and the factors influencing their OER decision-making. The purpose of this study is to go beyond simply listing the various "challenges" and "barriers" to OER adoption by integrating these factors into an analytical framework that makes sense of them and allows for cross-institutional comparison.

In this chapter, we use the term OER "adoption" as an umbrella term to cover both OER "use" and OER "creation". OER *use* refers to the full gamut of activities involved in reusing, remixing, revising, retaining and redistributing other people's OER so as to incorporate them into one's teaching materials.¹ This use is made possible by the fact that those publicly available materials have been openly licensed, and can therefore be legally appropriated. OER *creation* refers to activities in which producers' teaching materials are given an open licence and shared on a digital platform or website for public consumption. These materials may be the intellectual product of one person, or include other OER that have been incorporated into them through revision or remixing. Throughout this report, we use the terms OER "contribution" and OER "sharing" synonymously with OER "creation".

Background

Since the term "Open Educational Resources" – free, openly licensed educational materials available online to anyone – was coined in 2002, scholars, funders and advocates have promoted OER as a potential answer to the numerous challenges facing higher education (Boston Consulting Group, 2013; West & Victor, 2011). It is argued that OER can reduce the cost of textbook provision (Butcher, 2011), reduce the cost of higher education (Wiley, Green & Soares, 2012), increase the accessibility of higher education to more students,² improve the quality of educational materials resulting from collaboration and peer scrutiny

1 <http://opencontent.org/blog/archives/3221>

2 <https://www.whitehouse.gov/blog/2015/10/19/openly-licensed-educational-resources-providing-equitable-access-education-all>

(Daniel, Kanwar & Uvalić-Trumbić, 2006; Orr, Rimini & Van Damme, 2015) and expand the reach, impact and brand competitiveness of different higher education institutions (HEIs) (Butcher, Hoosen & Mawoyo, 2015; Ludewig-Omollo, 2011a; Wiley & Hilton, 2009).

In pursuing these ambitions, many top-ranked HEIs globally – as well as other educational projects and initiatives – have developed platforms and repositories where lecturers can share their teaching and learning materials.³ For instance, the Massachusetts Institute of Technology provides access to almost all of its courses and associated materials to the general public,⁴ Harvard University offers several free courses online,⁵ and Yale University provides free access to a number of introductory courses.⁶

The projects supporting these content-sharing initiatives can range in scale from a small group of people supported by small sums of money (Hodgkinson-Williams & Donnelly, 2010) to massive institutional projects run by large teams with long-term financial support (Abelson & Long, 2008; Carson, 2009). Some of these are sponsored by private philanthropic foundations (Atkins, Brown & Hammond, 2007), while others are supported by governments with policies advocating OER use and creation (Daniel & Uvalić-Trumbić, 2012).

The OER effort, established on a growing “culture of contribution”, is no longer a nascent movement (Atkins et al., 2007), but is now said to have reached an “inflection point” where the broader changes in education, together with OER, have changed the way education can be delivered (Matkin & Cooperman, 2012). This is especially true in the Global North where many HEIs enjoy relatively robust infrastructural (electricity, hardware, connectivity) and financial resourcing, and where academics are able to engage with OER in languages – primarily English – with which they have professional familiarity (Cobo, 2013).

However, despite the infrastructural and resource capacities of many institutions in the Global North, OER adoption has yet to become a normative practice across all faculties and disciplines.⁷ The reasons most commonly cited by Northern-based studies for why academics have yet to engage with OER revolve around a series of deficits. The lack of OER awareness amongst many lecturers is a barrier to adoption (Reed, 2012; Rolfe, 2012). So too is a lack of copyright permission for lecturers to share their teaching materials as OER (Fitzgerald & Hashim, 2012; Flor, 2013; Tynan & James, 2013). Additionally, many lecturers feel that there is a dearth of relevant, high-quality OER available for them to use (Clements & Pawlowski, 2012; Willems & Bossu, 2012). Moreover, some lecturers also lack the personal interest to use or create OER because they do not see its value (McGill, Falconer, Dempster, Littlejohn & Beetham, 2013; Pegler, 2012; Reed, 2012; Rolfe, 2012). This motivational deficit is influenced by lecturers' perceived lack of time to engage with OER (Allen & Seaman, 2014) and the lack of formal institutional recognition of any OER adoption activities (Jhangiani, Pitt, Hendricks, Key & Lalonde, 2016).

Hence, there appear to be a number of factors shaping OER adoption decisions amongst lecturers, though it is not clear what relationship these factors might have with each other

3 <http://onlineuniversityrankings2010.com/2010/open-edu-top-50-university-open-courseware-collections/>; <https://oerqualityproject.wordpress.com/2012/10/22/directory-of-oer-repositories/>; <https://library.educase.edu/topics/teaching-and-learning/open-educational-resources-oer>

4 <http://ocw.mit.edu/>

5 <http://extension.harvard.edu/index.php?q=open-learning-initiative>

6 <http://oyc.yale.edu/>

7 <http://er.educase.edu/articles/2013/2/ten-years-later-why-open-educational-resources-have-not-noticeably-affected-higher-education-and-why-we-should-care>

in influencing OER decision-making. Nor is it clear from the OER literature how the broader cultural and social context – the departmental and disciplinary norms and expectations that form part of a lecturer’s “world” with their colleagues (both proximate and virtual) – within which lecturers operate might shape their OER choices.

This lack of clarity is mirrored in the diverse perspectives that many lecturers have concerning OER quality, a fact that demotivates adoption for some while motivating adoption for others (Hatakka, 2009; Pegler, 2012; Stacey, 2007). Regarding the use of OER, some lecturers perceive that because OER are free, they may be of poorer quality than the traditional, copyrighted educational materials sold by publishers (Boston Consulting Group, 2013). Therefore, they would prefer that OER undergo some sort of quality assurance process before they use them. By contrast, other lecturers assume that OER would typically be of good quality because the resources themselves are exposed to “diversified expertise and perspectives” (Stacey, 2007, p.11).

This complexity is compounded for lecturers who could potentially share their own teaching materials openly, but don’t. According to Davis et al., many lecturers do not share their materials beyond a small, known community because they feel a “lack of confidence in the applicability of the resource” (2010, p.103). Kursun, Cagiltay and Can also note that amongst Turkish lecturers one of the main reasons for not sharing their materials as OER was “a lack of self-confidence about the quality of their course materials” (2014, p.25). In contrast to these lecturers’ perceptions, Van Acker, Van Duuren, Kreijns and Vermeulen found that those who shared their materials openly did so because they believed they had value for others, an attribute that the authors identified as “knowledge self-efficacy” (2013, p.188).

Complicating these perspectives about OER quality is the lack of an associated pedagogy which is seen as a potential obstacle for many lecturers (Davis et al., 2010; Sclater, 2010). There is a concern that OER are often stand-alone content lacking facilitator or peer support and are therefore limited in their use. However, OERs’ unconstrained pedagogical utility may also be seen as an enabler for use, in that many OER can be incorporated into a lecturer’s teaching approach with relative ease (Santos-Hermosa, 2014). Additionally, Stacey (2007) states that learners who have access to a larger range of resources may be encouraged to further explore their fields in an autonomous and self-reliant way.

Lecturers have certain beliefs and attitudes about pedagogy and these can play an important role when they contemplate contributing, using and reusing OER. By pedagogy we mean lecturers’ teaching practices, as informed by critical, reflexive engagements with learners (Waring & Evans, 2015). Users of OER can change materials to meet their needs; however, this requires “a change in pedagogical practices, and beliefs, and a move towards a more open, participatory, collaborative, creative and sharing culture” (Karunanayaka, Naidu, Dhanapala, Gonsalkorala & Ariyaratne, 2014, p.18).

Despite lecturers’ diverse perceptions of OER quality and pedagogic value, many of the purported benefits inherent to OER might have their greatest impact and utility in the countries in the Global South (Bateman, 2008; Butcher, 2009; Kanwar, Balasubramanian & Umar, 2010). The fact that these materials are available online at no cost to the user would, at least theoretically, provide an incentive for resource-constrained institutions and lecturers to investigate the potential of OER adoption.

Research questions

With these insights from the literature on OER adoption in the Global North, we turn our attention to OER adoption in a Global South country. Focusing on three South African universities – the University of Cape Town (UCT), the University of Fort Hare (UFH) and the University of South Africa (UNISA) – this study seeks to understand the factors shaping lecturers' motivations and concerns regarding OER use and creation.

Primary research question:

1. Why do South African lecturers adopt – or not adopt – OER?

Subsidiary research questions:

1. Which factors shape lecturers' OER adoption decisions?
2. How does an institution's culture shape lecturers' adoption of OER?

In order to address the main research question, we review the literature on OER adoption most pertinent to our region (Africa), investigate the broad range of factors that might shape lecturers' OER adoption, and assess the role that culture might play in OER adoption decisions within that range of factors. By attending to these issues in this way, we will not only be able to answer the subsidiary questions but also use their answers to help build up towards a more comprehensive and persuasive answer to the primary question.

Literature review

This study has drawn on a relatively extensive literature that focuses on OER activity at institutions in the Global North, as discussed in the Introduction. However, we are also able to draw on pockets of research that are emerging from initiatives in the Global South that are relevant to this study.

To date, there has been a small but growing research interest in South African lecturers' adoption of OER (de Hart & Oosthuizen, 2012; Hodgkinson-Williams & Gray, 2009; Mawoyo, 2012; Percy & Van Belle, 2012; van der Merwe, 2013). Hodgkinson-Williams and Donnelly (2010) and Hodgkinson-Williams et al. (2013) provide a first glimpse of the development and push for OER activity at the UCT. Cox (2012; 2013; 2016) also examines the situation at UCT, focusing on lecturers' motivations for using and contributing OER. Lesko (2013) provides a useful overview of some of the issues involved in academics' perceptions of OER adoption, drawing on the input of survey respondents from an array of South African universities. Additionally, de Hart, Chetty and Archer (2015) share the results of a survey conducted amongst staff from UNISA at a time when the institution was developing an OER strategy (discussed in further detail below).

The research that informed this chapter is framed by three overarching concepts: structure, culture and agency. *Structure* refers to largely externally defined elements that shape individual action, such as, in this case, national and institutional infrastructure, computer and internet-related technologies, intellectual property policies and OER

repositories and platforms. *Culture* includes the beliefs and norms of the (university) communities in which lecturers find themselves. *Agency* concerns the lecturers' personal capacity to choose a course of action which may or may not include OER adoption.

Structure and OER adoption

OER researchers suggest that a number of structural factors influence whether and how lecturers adopt OER, especially technological access, resource availability and legal permission.

Access

In the Global South, key infrastructure access challenges – such as insufficient technological infrastructure (Bateman, 2006; Clements & Pawlowski, 2012), low levels of internet penetration, broadband availability and electricity stability (CERI/OECD, 2007; Ngimwa, 2010) – appear to influence OER adoption and readiness at education institutions. Such access issues impact not only the institutions, but the lecturers and students themselves (whose own level of at home infrastructural access would also influence institutional and lecturer decisions about OER adoption) (Butcher, 2011; CERI/OECD, 2007; Dhanarajan & Abeydawara, 2013; Ngimwa, 2010).

Availability

Many lecturers in the Global South also worry about the availability of relevant, high-quality OER for their context (Abeywardena, Dhanarajan & Chan, 2012). Given that the development of OER is a relatively new practice, constituting just a fraction of the total number of educational materials created and used by academics globally, one can assume that there are still substantial gaps in the range of subjects covered by OER. This challenge is exacerbated for those seeking to use materials in a language where OER materials are sparse (Cobo, 2013; Zagdragchaa & Trotter, 2017).

However, there has been a proliferation of OER platforms in the Global North (as discussed above) along with a steady growth of portals in the Global South. The most relevant examples for our context, emanating from Africa, include the following initiatives:

- OER@AVU⁸ – the African Virtual University's OER repository hosts a growing number of OER in English, French and Portuguese. The initial contribution of content emerged from a collective effort by “12 African universities, 146 authors and peer reviewers from 10 countries in Anglophone, Francophone and Lusophone countries”⁹ to provide open materials for the university and the African public (Bateman, 2006; Diallo, Wangeci & Wright, 2012).
- OER Africa¹⁰ – this initiative of the South African Institute for Distance Education seeks to harness African expertise to create OER that will be of benefit to educators of African-related subject areas. Much of its focus to date has been on agriculture, teacher education, and health education across multiple countries (see, for instance, Omollo, 2011a; 2011b; Welch & Glennie, 2016).

8 <http://oer.avu.org>

9 <http://oer.avu.org/about>

10 <http://oerafrica.org/>

- AfriVIP¹¹ – the African Veterinary Information Portal is an OER platform based at the University of Pretoria's Faculty of Veterinary Sciences (Onderstepoort campus), “enabling the sharing of its vast wealth of intellectual capital under an open license” (Haßler & Mays, 2014).
- OpenUCT¹² – UCT's Open Access and OER repository shares both research and teaching and learning resources (Czerniewicz, Cox, Hodgkinson-Williams & Willmers, 2015).
- TESSA – the Teacher Education in Sub Saharan Africa initiative is a “consortium of institutions concerned with the collaborative production of original OERs to support teacher development” (Wolfenden, 2008, n.p.). It does this by providing OER “in four languages to support school-based teacher education: English, French, Swahili (Tanzania) and Arabic (Sudan)”¹³ (Murphy & Wolfenden, 2013; Thakrar, Wolfenden & Zinn, 2009).

These initiatives are also complemented by nascent national policy developments, such as South Africa's Department of Higher Education and Training's recommendation for the widespread use of OER in its *White Paper for Post-School Education and Training* (DHET, 2014) and some other smaller OER developments across the continent (Lesko, 2013).

However, it is difficult to ascertain the importance or impact of many of these initiatives as current studies suggest that the level of engagement with OER remains relatively low not only in Africa (Cox, 2016; Lesko, 2013; Samzughi & Mwinyimbegu, 2013), but across the Global South (Commonwealth of Learning, 2016; Dhanarajan & Porter, 2013; Hatakka, 2009).

But when we talk about the “availability” of OER, it is important to differentiate the fact that beyond the absolute number of OER that might be “generally” relevant to a person in a particular discipline, these OER must also be “specifically” relevant for a lecturer's anticipated use if they are to have utility. As the potential users, it is lecturers' needs that define the relevance of an OER. Additionally, assuming that lecturers can find OER that are relevant to their anticipated purposes, those OER must also meet their subjective quality standards concerning issues of accuracy, completeness and rigour. Only when all three of these criteria – relevance, utility and quality – are met, can it be said that OER are *available* to a potential user. This reminds us that, for lecturers who are developing course materials to teach their students, the “openness” of an OER is rarely more important than the practical, pedagogical concerns surrounding the relevance, utility and quality of *any* educational material.

For lecturers who are potential OER contributors, however, availability refers to the materials that they themselves have developed for their own teaching and could potentially share openly. This would include materials designed from scratch without the inclusion of any other OER, as well as those materials that are revisions of already existing OER or contain remixed components of other OER. In order to determine the availability status of their own materials, lecturers may assess them according to the same criteria that users do: asking themselves whether their materials are relevant for others and of the requisite quality to be useful. If they consider their work too context-specific or niche, or perhaps believe that

11 <http://www.afrivip.org/>

12 <http://open.uct.ac.za/>

13 <http://www.tessafrica.net/>

there are already an adequate number of similar materials available on OER platforms, they might feel that their work is not relevant as an OER.

In addition to this, while lecturers may deem the quality of their materials suitable for their own students, they may worry that other academics would view their materials as incomplete or of low quality because they do not contain all of the information or insights that would otherwise surface in their live teaching sessions. Judged by these criteria, the availability status of many lecturers' teaching materials is "unavailable", at least in their current "as is" state. Since most materials are prepared specifically for a "closed" teaching environment, the materials would require some modification before they could be shared openly. This alteration process – transitioning one's materials to a state of OER-readiness (availability) – would require time.

Permission

In addition to concerns around access and availability, HEI lecturers often also lack legal permission to share their teaching materials openly because such work product is the intellectual property of the university (Mtebe & Raisamo, 2014), or the lecturers are unsure of whether they have permission and may be "afraid of breaching intellectual property rights" (Bateman, 2006, p.9).

For OER creation, such legal permission is usually determined by institutional Intellectual Property (IP) policies. In South Africa, most universities have IP policies stating that lecturers' work product is the property of the institution, which aligns with prescriptions laid out in South Africa's Copyright Act of 2008 which grants employers default copyright ownership over employees' work-based creations.¹⁴ At universities, this means that lecturers do not hold copyright over the teaching materials they produce and cannot, therefore, legally share these materials as OER without the permission of the institution (the copyright holder) (Mtebe & Raisamo, 2014). In some cases, it is possible to petition the university for permission to share materials as OER, but the fact that copyright is not automatically placed in the hands of the academic creator means that permission is a substantial hurdle for the majority of South African lecturers who might want to share OER. In many cases, the institution is therefore the potential agent for OER creation (the open licensing and distributing of an educational resource), rather than the individual lecturer.

In cases where lecturers possess copyright over their teaching materials, individual volition may also be influenced by institutional activities that relate to OER. Institutions can seek to promote greater OER engagement by lecturers via various mechanisms and incentives, such as providing technical staff to assist lecturers with OER adoption, resources (e.g. hardware, software, funds) for using/creating OER, recognition for OER use/creation excellence (such as an award) or pro-OER policy declarations. These support mechanisms and incentives are workplace features established specifically to enable or drive OER activity (and thus go beyond the basic provision of electricity, computers and so forth). They represent an institution's formal commitment, or lack thereof, to OER engagement, and may shape individual lecturers' volition in this regard.

14 <http://roer4d.org/2298>

Culture and OER adoption

The values, ambitions, practices and histories of educational institutions can also shape OER adoption in quite different ways. These elements help comprise the social and cultural worlds in which the lecturers operate and deal with questions regarding OER. To understand this in the South African universities we researched, we drew on the literature concerning institutional culture to help us delineate between the various governance, policy and collegial traditions at play.

Our understanding of the concept of institutional culture is defined by two approaches, both of which focus on academic organisations. McNay (1995) defines institutional culture types according to an organisation's relationship to its policies, that is: (1) how loose or tight its policy definitions are, and (2) how loose or tight its control of policy implementation is. McNay posits four institutional culture types:

1. Collegium ("laissez faire"): loose policy definition, loose control of implementation.
2. Bureaucracy: loose policy definition, tight control of implementation.
3. Enterprise: tight policy definition, loose control of implementation.
4. Corporation: tight policy definition, tight control of implementation.

This is a useful schema, but the term "culture" requires a more expansive understanding than that offered by a narrow focus on institutional policy metrics. Hence we also draw on the work of Bergquist and Pawlak (2008), which defines institutional culture types according to multiple variables, including governance style, level of members' personal autonomy, and location of members (virtual/present). Six types of academic institutional cultures are proposed – collegial, managerial, developmental, advocacy, virtual and tangible – though only the first two are relevant in this study context:

1. Collegial: decentralised governance, academic freedom, faculty contributions.
2. Managerial: bureaucracy, hierarchical, efficiency and assessment of work.

We employ "institutional culture" as a broad descriptive concept to help differentiate between complex organisational entities that are constituted by their dynamic interplay between structural (policy, etc.), social (collegial norms, etc.) and agential (level of individual autonomy, etc.) factors. How these three variables combine at any institution helps us determine the kind of institutional culture that predominates there, allowing us to ask how OER-related activity might proceed.

With this in mind, the three institutional culture types that are relevant for this study are *collegial* (decentralised power, high levels of individual autonomy), *managerial* (hierarchical, expansive policy elaboration with tight implementation) and *bureaucratic* (hierarchical, expansive policy elaboration with erratic implementation).

OER scholars acknowledge that lecturers' motivation to engage with OER may be low (Gunnness, 2012; He & Wei, 2009), and may be influenced by the prevailing cultural context which includes departmental and disciplinary norms concerning the sharing of teaching materials, colleagues' awareness and knowledge of OER, colleagues' pedagogical mindsets (traditional vs. progressive, risk-averse vs. risk-taking, etc.), colleagues' level of interest in OER

(whether one is part of a critical mass of OER adopters, or potentially alone in such activity), etc. (Cox, 2012; Cox & Trotter, 2016; Wolfenden, Buckler & Keraro, 2012). These are the social customs, collegial expectations and disciplinary norms that can cue the behaviour of academics concerning OER, and which academics themselves either reinforce or resist.

For some lecturers, their social and cultural context will play a key role in determining whether they develop the motivation – or volition – necessary to engage in OER activity (Ehlers, 2011; Pirkkalainen, Jokinen, Pawlowski & Richter, 2014). Others, however, may disregard these conditions and base their decisions on their values or their “personal concerns” (Cox, 2016, p.12).

Agency and OER adoption

In addition to the structural and cultural elements shaping OER adoption, lecturers' agency and activity are also shaped by their personal and institutional OER awareness, capacity and values.

Awareness

A number of researchers cite low levels of exposure to OER (Allen & Seaman, 2014) and the lack of OER awareness as a critical factor shaping lecturers' OER activity (Hatakka, 2009; Samzugi & Mwinyimbegu, 2013). Awareness of OER in this study includes an understanding that OER are teaching and learning resources that can be shared, reused and released under an open licence such as Creative Commons (CC). This is an important consideration because lecturers may share their educational materials with colleagues in an informal fashion and download resources from the internet for classroom use without any appreciation of the legal distinction between copyright-restricted educational materials and OER. This may occur in a context of acceptable “fair use” or “fair dealing” practices in which educators use a portion of copyrighted materials for illustrative purposes,¹⁵ or it may go beyond that, stretching the limits of legal acceptability. Thus, while they may engage in downloading and sharing activities that resemble OER adoption activities, the fact that they are not consciously exchanging materials with the kind of open licensing that facilitates open content adaptation and sharing means that, strictly speaking, they are not engaged in OER adoption activity. Awareness of the principles that inform OER adoption therefore constitutes an important component of formal OER engagement and agency.

Capacity

Scholars also suggest that some educators have limited technical capacity to engage with OER (Bateman 2006; Lesko, 2013; Wolfenden et al., 2012). This type of capacity is a more focused set of skills than general computer literacy, because it requires that lecturers (or institutional assistants) possess an understanding of what differentiates OER from other educational materials as well as the technical skills to adapt (revise or remix), curate (include metadata to aid findability) and share these materials on a public platform. They must, therefore, comprehend the role of open licensing and how this impacts internet searching

15 Shaikh (2012). Retrieved from https://open.uct.ac.za/bitstream/handle/11427/2306/OpenUCT_Shaikh_Fair_DealingInEducation_2011.pdf?sequence=1

(to find OER) as well as materials development (for open sharing of educational resources). The same goes for institutions, if they are the agents of OER creation.

Values

In addition, many of the Southern lecturers who do use OER in their teaching fail to take the next step to create and share their own OER with the rest of the world (Dhanarajan & Porter, 2013; Hattaka, 2009; Lesko, 2013). This threatens to lock them into a “culture of dependency” (Ngugi, 2011, p.284) with the North, relying on theories, concepts and solutions derived from outside of the lecturers' and students' own context. This challenge cannot be met by the efforts of scattered individuals who make the effort to contribute. As Rolfe argues, “central to sustainability is the community and growth of a critical mass of interested individuals” (2012, p.7) and, as Khanna and Basak (2013) state, an enabling OER architecture. Thus, despite the democratic and emancipatory potential of OER, which allows Southern lecturers to broadcast their intellectual and teaching expertise without the mediating influence of publishers, the rapid proliferation of OER may ironically perpetuate a “digital divide” between the South and North rather than overcome it (Smith & Casserly, 2006). Without a critical mass of Southern lecturers using and contributing OER, its potential will always remain just that: potential, never fully realised.

Methodology

This study utilised a mixed-methods approach (Cohen, Manion, Morrison & Morrison, 2007; Maxwell, 2008) to investigate the decisions that lecturers at three South African universities made in their teaching practices as relates to OER. While the sample size of 18 interviewees was relatively small in absolute numbers, respondents were drawn from three quite different universities which, together, broadly represent the characteristics found across South Africa's university sector.

Institutional research context

This study comprised workshop interactions and interviews with academics at the UCT, UFH and UNISA. In a national context of 26 public universities (and no private ones of similar size or mandate), these three possess qualities that, in their different ways, mirror a number of the qualities of the other 23, which makes them useful for comparative purposes.

UCT is a traditional,¹⁶ urban, residential, medium-sized (26 000 students), research-intensive university with a predominantly face-to-face (contact) teaching model. It is comparatively well resourced, historically white (legally so during apartheid) and “privileged” (in South African parlance). It is defined by a *collegial* institutional culture (Czerniewicz & Brown, 2009), characterised by a decentralised power structure in which power does not flow in a top-down fashion, but rather moves laterally between faculties and allows for high levels of individual autonomy amongst the academic staff.

16 In South Africa, “traditional” universities offer degrees based on theoretical knowledge, while “comprehensive” universities offer a combination of academic and vocational diplomas and degrees.

UFH is a traditional, rural, residential, small (13 000 students), teaching-intensive university with a face-to-face teaching model. It is comparatively poorly resourced, historically black “African” and “underprivileged”. It is defined, as shall be seen, by our interviewees’ description of the institution, as having a *bureaucratic* institutional culture, characterised by a top-down power structure in which power is largely exercised by management and administrators, reducing the autonomy of individual academics. However, this power is exercised less through coherent, strategic policy implementation than by arbitrary and excessive “red tape” (from the lecturers’ perspective).

UNISA is a comprehensive, dispersed, massive (over 400 000 students), teaching-intensive university with a distance (correspondence) teaching model. It is comparatively well resourced, historically multiracial and modestly privileged. It is defined by a *managerial* institutional culture (Chetty & Louw, 2012), characterised by a top-down power structure in which a relatively strong managerial class exercises power through tightly defined policies and strategies that structure lecturers’ latitude and agency.

These three universities possess a broad spectrum of the differentiating qualities shared by South African universities: traditional vs. comprehensive, urban vs. rural, residential vs. dispersed, small vs. medium vs. large, teaching vs. research intensive, poorly vs. modestly vs. well resourced, collegial vs. bureaucratic vs. managerial institutional cultures, historically black/white/multiracial, and various levels of historical privilege.

Research engagement

After obtaining ethical clearance and identifying a local coordinator to facilitate research engagement at each university, we initiated the research process by carrying out OER workshops in March 2015. Each of the workshops included 12–19 participants (43 in total at the three sites) and ran for a day and a half, with the first day devoted to discussing the Open movement, opportunities afforded by OER, and how and where to find OER online. The second day covered practical elements concerning CC licensing, which, for many participants, was completely new information. Participants were also guided through a process of adapting or creating an OER and dealing with the associated technical, legal and pedagogical considerations, which provided them with practical developmental experience with OER.¹⁷

During the workshops we also provided space for open conversation about teaching practices, disciplinary norms, institutional IP policies, financial resources and so forth. These conversations were recorded and incorporated into our broader understanding of each university’s OER context.

After completing the workshops, we conducted one-on-one, in-depth interviews with six selected lecturers at each university, chosen mainly from the workshop participants. At each university we sought to select a diverse group of respondents based on age, gender, race, position and discipline that would, cumulatively, be broadly representative of the institutional teaching staff. The interviews – comprising 50–56 semi-structured questions, depending on the answers given – lasted between 30 minutes and one hour.

¹⁷ To access the workshop presentations, see <http://www.slideshare.net/ROER4D/openness-in-highereducation>; <http://www.slideshare.net/ROER4D/copyright-creative-commons-49771783>; and <http://www.slideshare.net/ROER4D/how-and-where-to-find-open-educational-resources-oer>.

Respondent profile

Of the 18 respondents interviewed at the three universities, 11 (61%) were female and 7 (39%) were male. One was a professor, one was an associate professor, six were senior lecturers, six were lecturers, two were postgraduate students (who were also instructors), and two were education consultants connected to a university.

Data analysis and sharing

Upon completing the research, interviews were transcribed and the resulting transcripts compiled for coding according to the concepts identified during the project proposal phase, the literature review and the transcript-processing phase. Data were then collated into themes informed by the literature review relating to the primary and subsidiary research questions (such as OER awareness, use, policies, technical skills, barriers, departmental norms, motivations, perceptions of quality, etc.), annotating them accordingly for analysis.

Interview transcripts as well as results from an accompanying survey¹⁸ have been published¹⁹ along with extensive metadata on the DataFirst Data Portal after undergoing a multiphased quality assurance and de-identification process. The authors and the Research on Open Educational Resources for Development (ROER4D) Curation and Dissemination team checked data files for consistency and correctness, whereafter a de-identification process was undertaken utilising an omission and revision strategy. The dataset was then reviewed by DataFirst to ensure that no overt technical errors existed and no identification of research subjects was possible, either by single or a combination of data points.

The resulting dataset, published under a CC Attribution (CC BY) licence, is comprised of 18 interview transcripts and survey data shared in Excel (.xlsx) format, along with data collection instruments, a dataset description, a project description, and a de-identification overview in PDF format.

Analytical framework

We are not the first to highlight and interrogate the multiplicity of factors shaping lecturers' OER choices, nor the motivations behind those choices. However, many studies present these factors as serialised lists (e.g. CERI/OECD, 2007; Hatakka, 2009; Pegler, 2012), as if there were a sort of equivalence between them. Prior to starting the research, this did not appear to be problematic to us. However, once we started interviewing lecturers at the three universities, three challenges to this conventional approach became clear. First, many of the factors were actually *qualitatively* different from each other, and therefore required careful and consistent delineation. Because some of the factors were within the realm of lecturers' personal control while others were less so, or were out of their control entirely, their responses to our questions made it clear that there were *categorical* differences between these factors that affected how they should be assessed. The varying degrees of control

18 This survey was undertaken as a component of ROER4D Sub-project 4. The resulting data are, however, not drawn on in the articulation of this chapter.

19 <https://www.datafirst.uct.ac.za/dataportal/index.php/catalog/555>

that lecturers had over the many factors shaping their OER adoption decisions had to be incorporated into any analysis of why they may, or may not, adopt OER.

Second, some of the factors that they mentioned were “essential” – in the sense that they had to be present for OER adoption activity to take place (in a universal sense) – while others were idiosyncratic factors that might influence one lecturer’s decisions about OER, but not others (in a subjective sense). Thus, in this chapter, we use the term “factors” to discuss only those elements of OER adoption that are essential for adoption activity, while we use the term “variables” to discuss those elements that might be influential, but not essential.

Third, as became clear to us as we conducted research at the three institutions, when it comes to OER adoption in most higher education contexts, there are two potential agents of OER activity: lecturers and the institution itself. While lecturers who develop their own teaching materials may be potential users of OER in that they can incorporate external OER into their teaching materials, they can only be considered potential OER creators if they hold copyright over their teaching materials. In many instances they do not, and copyright is held by their employers, the institution. When this is the case, the institution should be regarded as the potential OER creator because only it has the legal right to license and share the educational materials openly. While the lecturers may have developed the teaching materials that are used for instruction, if copyright belongs to the institution, then the institution is the agent responsible for deciding whether the materials will be made open or not. Because of this – and the fact that our research sites had varying IP policies – we had to broaden the scope of our analysis beyond just lecturers as OER adoption decision-makers and include, where necessary, the institution as well.

To address the challenge of the points above, we developed an analytical framework, which can be described as an “OER adoption pyramid” (Trotter & Cox, 2016), based on what we found in the data. It helped us analyse OER activity in the three university research sites and provided a way for assessing the relative importance of a particular factor on lecturers’ (or institutions’) OER adoption activities.

OER adoption pyramid

The OER adoption pyramid framework utilises a layered analytical approach, focusing on the factors that are essential for OER activity in an institutional setting, sequenced according to the level of personal control lecturers have over them (from externally determined to internally determined). It reveals and differentiates the roles that they play in making OER activity possible. The value and flexibility of this framework will become clear through the analysis in the Findings section.

The OER adoption pyramid presented in Figure 1 consolidates the essential OER adoption factors into six categories, layered according to the level of control that individual lecturers have over them. From external to internal determination, they are: infrastructure *access*, legal *permission*, conceptual *awareness*, technical *capacity*, educational resource *availability* and personal *volition*.

Under these six terms we can locate numerous other “variables” listed in the literature and mentioned by the interviewees themselves, such as perceptions of OER quality and self-confidence. These variables – though not as determinative of OER adoption at a universal

level as the six factors – can also have a powerful influence on OER decision-making by individual lecturers and institutional agents.

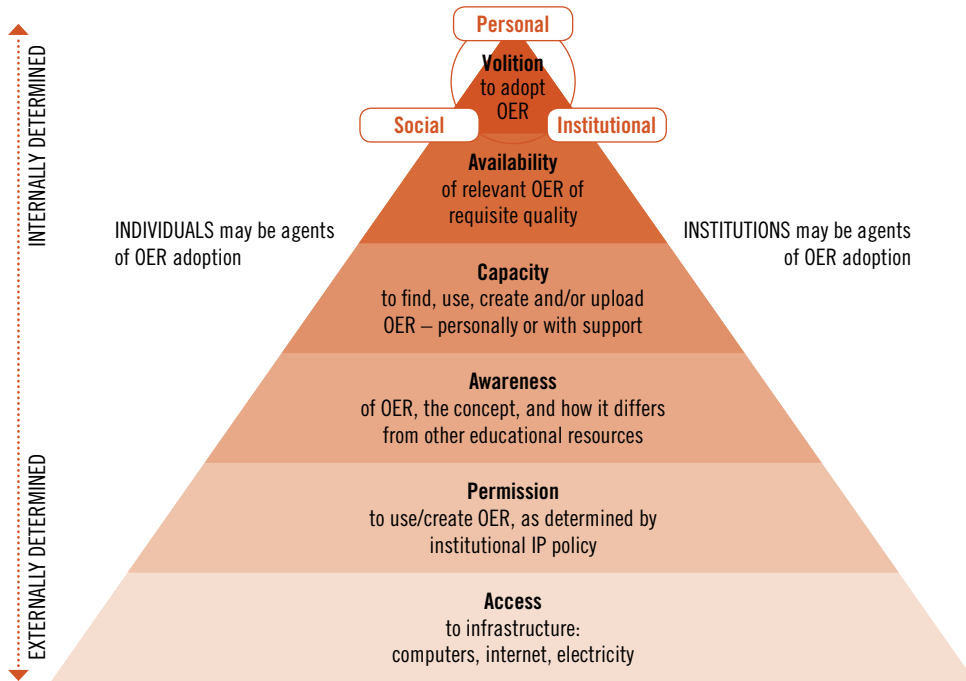


Figure 1: OER adoption pyramid

The pyramid graphically represents the categorical gradations in this external–internal spectrum of factors, and shows how the OER adoption activities of either lecturers or institutions can be assessed with it.

Access

With this in mind, the first factor determining lecturers' or institutions' engagement with OER is *access*. This refers to access to the appropriate physical infrastructure and hardware – such as electricity, internet connectivity and computer devices – necessary for engaging with digitally mediated OER. It is the OER adoption factor that lecturers have the least control over, in that it tends to be determined primarily by state resource capacity and provision (for electricity and connectivity) and institutional resource allocations (for computers).

Permission

The second factor is whether lecturers or institutions have *permission* to adopt OER. For OER use, it is the OER itself – via its licensing provisions – that determines the parameters of how it may be used (whether it can be used in part, or must be used in whole; whether it can be commercialised or not; etc.). For OER creation, it is typically the institution's IP policies that determine whether it is the lecturers (the actual developers of the teaching materials) or the institution itself which holds copyright over the teaching materials, and can

therefore share them openly. This legal sharing of educational materials openly is what we call OER “creation”.

Awareness

The third factor is the lecturers’ or institutions’ *awareness* of OER. Essentially, the relevant agent must have been exposed to the concept of OER and grasped how it differs from other types of (usually copyright-restricted) educational materials (Hatakka, 2009; Samzug & Mwinyimbegu, 2013).

Capacity

The fourth factor is the lecturers’ or institutions’ *capacity*, or technical and semantic skills, for using and/or creating OER (Lesko, 2013; Wolfenden et al., 2012). This capacity can be manifest in the individual lecturer concerned or found in the form of institutional support services. This characteristic implies that a lecturer or institution enjoys the necessary technical fluency to search for, identify, use and/or create OER, or has access to support from people with those skills.

Availability

The fifth factor concerns the actual *availability* of OER for lecturers or institutions to use or share. The question of availability for a potential user is determined not only by the absolute number of OER in circulation within one’s discipline, but by the *relevance* of any particular OER – in terms of content, scope, tone, level, language, format, etc. – for a specific anticipated use (*utility*), and by the *quality* of that OER as subjectively judged by the user (Abeywardena et al., 2012). As mentioned above, one can assume that there are still substantial gaps in the range of subjects covered by OER. This challenge is exacerbated for those seeking to use materials in a language where OER materials are sparse (Cobo, 2013; Zagdragchaa & Trotter, 2017). For potential OER creators, availability refers to whether the agent has – on hand – educational materials that can be shared openly. In most cases, while they may have educational materials that were developed for a specific in-class or correspondence teaching context, they would need to make some alterations to the materials (to upgrade the quality, to broaden the relevance, to establish the open permissions) before sharing them openly.

Volition

The final factor in OER adoption relates to lecturers’ or institutions’ motivation or *volition*: their desire or will to adopt OER. If the relevant agent enjoys the access, permission, awareness, capacity and availability necessary to engage in OER activity, then volition becomes the key factor in whether or not they will use or create OER (He & Wei, 2009; Pegler, 2012; Reed, 2012; Rolfe, 2012).

The notion of a lecturer’s or institution’s volition is, however, complicated because – regardless of who holds copyright over the teaching materials – individual volition is potentially shaped by both social context (departmental and disciplinary norms) and institutional structures (policies, strategies and mechanisms), while institutional volition is often shaped by its lecturers’ desires and the social context that pertains across multiple

sites at the university, as shown in Figure 2 (Cox, 2012; Cox & Trotter, 2016; Wolfenden et al., 2012).

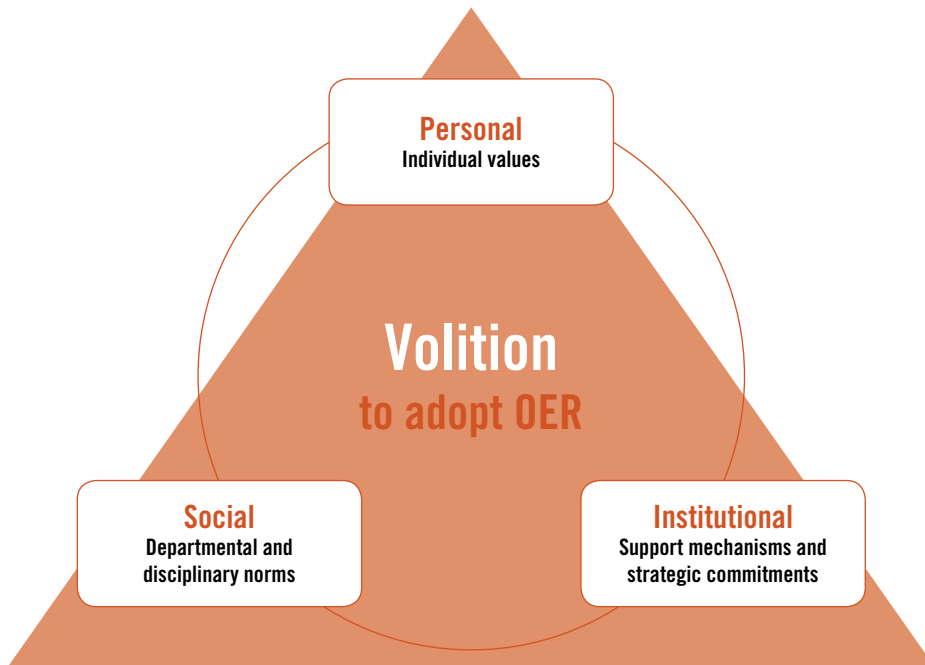


Figure 2: The final factor of the OER adoption pyramid – volition

Individual volition

At institutions where lecturers are the potential agents of OER activity, the elements shaping their individual volition are the personal, idiosyncratic, internal beliefs and practices that have bearing on whether or not they might adopt OER. These include their teaching style (i.e. interactive vs. lecture-based or materials-based), education philosophy, level of self-esteem about their own teaching materials (Beetham, Falconer, McGill & Littlejohn, 2012; Davis et al., 2010; Kursun et al., 2014; Van Acker et al., 2013), level of concern about others misusing or misinterpreting their work, etc. These are interior variables – fears, concerns, desires, aspirations – arising from within the lecturers themselves.

Institutional volition

However, in many cases, the institution possesses copyright over lecturers' teaching materials (Trotter & Cox, 2016). This means that institutional management is in fact the unit of agential analysis regarding the "creation" side of OER adoption. While lecturers have the agency to decide whether to use OER in their teaching, the institution would need to decide whether it wanted to openly license and share the teaching materials that it holds copyright over. This decision would be informed by the managerial leaders' educational philosophies (open vs. closed), strategies for the institution's engagement with students and the public, and desires for enhancing the brand of the institution. It would also be informed by the lecturers' prevailing desires and the social norms of the faculties.

Using the pyramid

The value of the OER adoption pyramid is that it enables a structured comparison of the factors involved in OER adoption at an institutional site, whether the focus is on the lecturer or the institution as the agent of analysis. It also shows that not all factors equally shape OER activity, and therefore should not be treated as such. Furthermore, as will be seen, it also generates opportunities for fruitful assessment and comparison, specifically through OER readiness tables (presented in the Findings), which clearly show which factors act as obstacles or opportunities with regard to potential OER activity at an institution.

While the OER adoption pyramid provides a generalised template for assessing OER activity (or potential activity) at a given institution, it focuses only on the six factors that we argue are necessary for OER engagement. That is, it purposefully keeps a narrow view on only those factors that should be in place for OER activity to proceed. This is a useful starting point, especially when analysing contexts where OER activity is either absent or nascent.

As mentioned above, there are many other variables which influence *how* OER opportunities are approached, understood, embraced or ignored, even if they are not essential as to *whether* OER activity may occur or not. Table 1 shows which variables are associated with each factor, allowing us to see the role they play in the broader categorical distinctions provided here.

Table 1: Variables associated with six OER adoption factors

OER adoption factors	Associated variables for OER users	Associated variables for OER creators
Volition	<ul style="list-style-type: none"> • Teaching style • Education philosophy • Level of self-confidence in own teaching materials • Institutional incentives and recognition • Social context: departmental, disciplinary and collegial norms concerning using OER • Cost/convenience considerations • Temporal ramifications for use 	<ul style="list-style-type: none"> • Self-confidence in own teaching materials • Concern about others misusing or misinterpreting their work • Impact on public profile • Institutional commitment (policies, strategies) • Institutional support (technical, financial, administrative) • Institutional recognition (promotion, awards) • Social context: departmental, disciplinary and collegial norms concerning sharing one's own materials as OER, including implicit and formal recognition • Temporal ramifications for creation
Availability	<ul style="list-style-type: none"> • Perception of an OER's: <ul style="list-style-type: none"> – quality (accuracy, completeness, rigour) – relevance (in terms of epistemic perspectives, scope, language, format, localisation, etc.) – utility (for a specific, anticipated teaching purpose) 	<ul style="list-style-type: none"> • Perception of one's own teaching materials': <ul style="list-style-type: none"> – quality – relevance – utility (for other educators) • Brand concerns: institutions may embark on a formal quality assurance process before sharing OER so as to ensure they bolster the profile of the university

OER adoption factors	Associated variables for OER users	Associated variables for OER creators
Capacity	<ul style="list-style-type: none"> • Legal knowledge concerning open licensing • Technical skills to search for, identify, download and use (reuse "as is", revise, remix) OER 	<ul style="list-style-type: none"> • Legal knowledge concerning open licensing • Technical skills to openly license one's work and upload (retain and distribute) it for public access
Awareness	<ul style="list-style-type: none"> • Conceptual understanding of difference between OER and other (usually copyrighted) educational materials – as well as the difference between OER use and "fair dealing" 	<ul style="list-style-type: none"> • Conceptual understanding of difference between OER and other (usually copyrighted) educational materials
Permission	<ul style="list-style-type: none"> • Parameters of the OER's open licence 	<ul style="list-style-type: none"> • IP policies (institutional) • Copyright policies (national/ institutional)
Access	<ul style="list-style-type: none"> • Internet access • Computer access • Electricity provision 	<ul style="list-style-type: none"> • Internet access • Computer access • Electricity provision

Validity and bias

One of the strategies used to mitigate bias was to engage in conceptual deliberation and in that process we checked each other, thereby holding each other to account. These deliberations occurred between the two main researchers and with the ROER4D Hub team. The concepts were carefully considered and distinguished. This helped to bring in some checks on any bias that may occur, which can be unchecked in qualitative research (Maxwell, 2008). Maxwell also suggests that "rich data should be collected through intensive interviews where every word is transcribed as opposed to some notes taken during the interview" (2008, p.244). In this study all interviews were transcribed.

Findings

In this section we discuss the study findings, using the OER pyramid framework to address the primary and subsidiary research questions. We profile each of the universities according to the relevant OER adoption factors, assessing their level of OER readiness per factor in the process. In this way, we are able to explain why lecturers at three South African universities adopt – or do not adopt – OER.

OER adoption profiles at three South African universities

With the OER adoption pyramid discussion in mind, we profile each of our target universities according to the six factors (access, permission, awareness, capacity, availability and volition) in order to understand how the institutions compare with each other, allowing us to grasp where the critical issues are located with regard to OER activity. Though the profiles relate to a specific time of investigation (2015) and some aspects of the descriptions will change quite rapidly, we also assume that a number of these elements will remain pertinent

for some time to come. These profiles should be seen as providing “deep snapshots” of the institutions, rather than timeless renderings.

Access

During our research period, infrastructural access at the three universities coincided with the level of development characterising their geographical location, ranging from robust in urban Cape Town and Pretoria to more fragile in the rural Eastern Cape. Thus, UCT had comparatively good access, with stable, high-speed broadband and Wi-Fi on campus, computers for all staff members, many computer laboratories and terminals for student use, and reasonably stable electricity provision. Its electricity supply was, however, not uninterrupted as it suffered periodic electricity blackouts (or “load shedding”, as referred to in South Africa), but at a far less disruptive rate than elsewhere in the country at the time.²⁰ When asked to describe the level of their access to electricity, computer hardware and internet broadband, all UCT interviewees reported good levels institutionally (on campus) and personally (at home).

By comparison, the level of access at UFH appeared low across the board: it had unstable, low-bandwidth internet connectivity – “in theory fast and stable, in practice slow and unstable”, according to one lecturer – and severe electricity challenges. Lecturers reported that they sometimes faced three load-shedding sessions per day, lasting hours at a time, combined with electricity problems internal to the university. As one lecturer indicated, “Especially this year we’ve been without electricity for like two weeks running on campus.” In addition, while academics enjoyed the use of staff computers, many students did not have their own, thus relying on the availability of computers in shared computer labs.

UNISA enjoyed a similar level of access to UCT, but with slightly less predictability in its electricity supply. This good level of access, however, pertained only to academics, as many students did not have reliable access because they live in poor, rural areas with weak infrastructural support, or in urban townships far from the UNISA satellite centres. As we will demonstrate, this discrepancy between academics enjoying good levels of access while many students do not, has an impact on the motivations that UNISA lecturers feel toward adopting OER, which they view as a largely digitally mediated (not paper-based) teaching innovation. As one lecturer shared, “these isolated communities that can only be reached really by post are going to be eliminated or marginalised [if OER are used]. So it is a serious problem and OER requires the internet”.

As a point of comparison, when asked what challenges developing countries face with regards to OER use, many respondents mentioned access issues, even if they felt ambivalent about whether their own institutions conformed to the image conjured by the term “developing”. This was especially true at UCT, which enjoys a relatively high level of infrastructure provision and stability, where one lecturer asserted, “We’re not at all as poorly resourced as people think.” Since some UCT lecturers had taught outside the metropole, they were aware of the challenges that other South African students face in this regard. As one said, “You need access to the resource in a sort of manner that’s accessible at all times. I’ve often been in a context where you can’t use it because there’s a bandwidth issue.”

20 <http://mybroadband.co.za/news/energy/129998-how-cape-town-joburg-prevent-stage-1-load-shedding.html>

This is the situation that UFH lecturers deal with as a norm. As one UFH lecturer responded, “if I’m talking in terms of rural areas, which is where we’re working, access would be a challenge”. This concern for students’ varied access capacities was echoed by a UNISA lecturer who said, “We do have regions in the country where the internet access is first class, like Pretoria and Joburg and Durban and Cape Town, but if you go to other provinces like Limpopo and Eastern Cape, which are very rural, then it becomes very difficult to access internet.”

In sum, these universities have varying levels of access to the technical infrastructure necessary to support online OER activity. While none of their situations is ideal, the access factor is not an insurmountable obstacle to OER adoption, even if it does influence it.

Based on this information, we can visualise the state of OER readiness for these three institutions according to this access factor for the sake of easier comparison. To do this, we differentiate between five levels of readiness corresponding with a red-to-green colour gradation: **red** being very low, **orange** being low, **yellow** being medium, **light green** being high and **dark green** being very high. In Table 2, we assess lecturers’ readiness to both use and create OER according to their access capabilities, as well as the institutions’ readiness to create OER in the same light.

Table 2: Level of institutions’ OER readiness according to access factor

Access: readiness	UCT	UFH	UNISA
If lecturers are agents of OER use	▲▲	◀▶	▲▲
If lecturers are agents of OER creation	▲▲	◀▶	▲▲
If institution is agent of OER creation	▲▲	◀▶	▲▲



Permission

While lecturers have the least control over the access factor discussed above, they also have relatively little control over their legal rights over the use or creation of OER. These rights are typically determined by external agents, such as the OER creator who defines the parameters of use surrounding their OER (for lecturers who want to use it) or the lecturers’ institutional management which determines who “owns” locally developed teaching materials (for lecturers who want to create OER from those materials).

In contrast to most other universities in the country, UCT lecturers possess copyright on their teaching and learning materials, allowing them to transform any of their teaching resources into OER.²¹ The UCT IP policy states:

UCT automatically assigns to the author(s) the copyright, unless UCT has assigned ownership to a third party in terms of a research contract, in: scholarly and literary publications; paintings, sculptures, drawings,

21 <http://roer4d.org/2298>

graphics and photographs produced as an art form; recordings of musical performances and musical compositions; course materials, with the provision that UCT retains a perpetual, royalty-free, nonexclusive licence to use, copy and adapt such materials within UCT for the purposes of teaching and research; and film. (UCT, 2011, p.15)

The policy goes on to clarify what this means for lecturers in terms of how they might share their work beyond the classroom, stating: “UCT supports the publication of materials under Creative Commons licences to promote the sharing of knowledge and the creation of Open Education Resources. UCT undertakes certain research projects that seek to publish the research output in terms of a Creative Commons licence” (UCT, 2011, p.15).²² Furthermore, this opportunity is reinforced by UCT’s Open Access Policy, which promotes, among other things, “the sharing of knowledge and the creation of open education resources” (UCT, 2014, p.3). This liberal policy framework is bolstered by the abiding collegial institutional culture through which academics enjoy high levels of autonomy in terms of the materials they choose to use in the classroom, including OER. UCT lecturers are therefore completely free to use and create OER.

By contrast, yet in line with most other South African universities, UFH lecturers do not have permission to share their teaching materials as they wish because the institution holds copyright.²³ As the UFH IP policy states: “The University of Fort Hare claims ownership of all intellectual property devised, made, or created by persons employed by the University in the course of their employment, whether appointed on a permanent or contract basis”, which includes “works generated by computer hardware or software owned or operated by the University” and “films, videos, multimedia works, typographical arrangements, field and laboratory notebooks, and other works created with the aid of University facilities” (UFH, 2010, p.5). UFH lecturers are therefore constrained in terms of OER creation. This constraint is exacerbated by the university’s bureaucratic institutional culture which often requires academics to seek permission or guidance from university management for new or innovative educational practices such as OER creation (as discussed below). At the moment, the IP policy provides the only guidance at the university concerning potential OER creation activity, which means that such sharing is forbidden. There is, however, “a certain degree of flexibility” as pertains to OER usage, as one lecturer stated. Even though UFH lecturers have their curricula “handed down to [them] pretty much”, they are able to incorporate OER into their teaching so long as these resources meet the requirements of the relevant curriculum guidelines.

UNISA lecturers bear the same restrictions as their UFH counterparts in terms of copyrighted work product, with the UNISA IP policy stating: “UNISA is the owner of all IP created by members of staff within the normal courses and scope of their employment” (UNISA, 2012, p.5). However, according to UNISA’s OER coordinator – a staff member overseeing the development and promotion of OER activities at the institution, and who contributed to the OER workshop we led – lecturers may petition their relevant tuition committees to allow them to share personally created teaching materials as OER. None

²² This does not, however, include “multiple choice tests and exam questions” or “syllabuses and curricula”, which UCT retains copyright over. See http://www.rcips.uct.ac.za/rcips/ip/copyright/uct_copyright.

²³ <http://roer4d.org/2298>

of the research participants in this study had, however, heard of this option. While this appeal mechanism does not appear to be well advertised, it does offer an opening for some lecturer-led OER creation.

Furthermore, it is technically possible that the curriculum guidelines and courseware production teams could incorporate OER into their work, though respondents admitted that they often relied on traditional teaching practices with well-known published textbooks and materials. Perhaps most crucially, however, the fact that not all students enjoy reliable access to computers or the internet means that all teaching materials must be printable and deliverable by post so that every student gets the same educational experience. Therefore, should an academic wish to use OER digitally, these resources could only be offered as “additional” or “optional” materials for the online students, and students could not be tested on material covered in those OER since the offline students would not have had access to them. This often leads to lecturers being cautious about using or sharing materials when they do not have explicit permission to do so. As more than one lecturer stated, “I just don’t want to do something wrong.”

UNISA’s OER strategy (UNISA, 2014) envisions a time in the future when OER will be at the heart of its course design. The plan relies on the fact that the university is the owner of a large collection of “intellectual property assets” (i.e. course materials) that it can license openly and disseminate centrally. This creates an interesting opportunity for the university and its teaching staff: while the lecturers themselves do not have permission to share their teaching materials as OER, they may eventually see them incorporated into a broader OER mission under the UNISA brand. This top-down approach to IP management and OER dissemination is consistent with a managerial institutional culture context where the leadership has the mission, strategy, policy control and technical capacity to achieve this goal.

While lecturers at all of these universities are permitted to use OER in their course materials, the IP distinction revealed here – between institutions where copyright over educational materials is vested in the creators (institutional lecturers) versus the employers (the institution itself) – shows that one cannot focus solely on lecturers as the agents of OER activity. As has been seen, when it comes to OER creation/contribution, in many cases lecturers lack the legal permission necessary to make their materials open, even if they want to. In those contexts, it is the institution which is the (potential) agent of OER contribution (Table 3).

Table 3: Level of institutions’ OER readiness according to permission factor

Permission: readiness	UCT	UFH	UNISA
If lecturers are agents of OER use	▲▲	▲	▲
If lecturers are agents of OER creation	▲▲	▼▼	▼▼
If institution is agent of OER creation	▼▼	▲▲	▲▲



Awareness

Unlike the previous factors over which lecturers have relatively little control, they do have a modicum of power over whether they are, or become, aware of OER. This outcome is certainly easier in contexts where other lecturers or managers are discussing OER publicly, raising awareness about it and so forth. But awareness of OER – along with numerous other educational innovations and trends – is obtainable by any lecturer who seeks out knowledge concerning such issues. OER is one of a number of globally current educational topics, featured in educational conference presentations, online discussion forums and pedagogically related journal articles, thus it is “out there” in online public discourse. Whether a lecturer becomes exposed to those discussions in general, and the OER concept in particular, is partially determined by their own knowledge-seeking behaviour. And certainly, if a lecturer has heard about OER but does not fully grasp it, they can easily learn more about it themselves and enhance their OER awareness and knowledge.

At UCT, all of the lecturers interviewed (n = 6) had been exposed to some extent to the concept of OER and broader discussions around “openness” (Open Access, Open Data, Open Science, open government, etc.). This is in large part due to the advocacy of institutional champions and academic units – including the library and the Centre for Innovation in Learning and Teaching (CILT)²⁴ – which have provided greater understanding of open practice and support for engaging with this approach. There are also institutional activities focusing on open scholarship, ranging from annual globally initiated Open Education and Open Access Week events to regular institutionally initiated workshops, seminars and training sessions concerning specific aspects of open academic practice (including OER). One lecturer, explaining how she came to learn about OER, stated, “If I hadn’t attended [the Teaching with Technology] workshops [at CILT], I would never have known about [OER] or have come to some of your seminars here.” Others mentioned various digital storytelling and copyright workshops attended, all of which included an OER component.

Furthermore, most of the UCT interviewees had an awareness of the OpenUCT institutional repository,²⁵ where both academic research outputs and OER are hosted. Thus, on the one hand, the institution itself is aware of OER (i.e. its management is aware), as shown through these awareness-raising and OER-supporting mechanisms (further demonstrated by various UCT policies and the university’s signing of the Cape Town Open Education Declaration and the Berlin Open Access Declaration). On the other hand, a good proportion of the lecturers are aware of OER, developed through official activities and the casual sharing of ideas and resources that takes place between many educators. As one lecturer stated regarding her colleagues’ level of OER awareness, “People have shared in the past, course links or courses that they think colleagues might be interested in doing, ya ... so it’s kind of just a part of the field of our work.”

In the UCT context, where lecturers possess copyright over the teaching materials they create, the collegial institutional culture places the onus of OER action on individual lecturers. While university management has a working awareness of OER and supports general OER activity, the responsibility for OER action rests with individual lecturers themselves. In this sense, the institution supports OER, but does not mandate it. Thus awareness is very much

²⁴ <http://www.cilt.uct.ac.za/>

²⁵ <https://open.uct.ac.za/>

optional, and oftentimes incidental. However, the history of OER awareness-raising at UCT has not been characterised by a one-way relationship in which an “aware” management gradually develops awareness amongst its academic staff. In reality, awareness of OER at UCT was initially promoted by a small number of motivated “open champions”, primarily in CILT, who not only spread awareness to other colleagues, but spent years cultivating greater awareness amongst the managerial ranks (Czerniewicz et al., 2015).²⁶ Sustaining this work at UCT has been challenging in the face of resource constraints and fluctuating priorities such as growing the Open Access research-oriented component of the OpenUCT repository.

By comparison, the level of OER awareness at UFH amongst participating lecturers was quite low, signified by the fact that only one participant (the study coordinator; $n = 1$ of 6) had heard of OER. When asked about her colleagues' awareness of OER, she stated, “Not much. They might know the word, but what it actually entails, I have my serious doubts about that.” Another lecturer, when talking about herself, simply said, “I didn't know about it.” It is possible that other staff members may have had knowledge of OER, but considering that a number of the workshop participants were from the Faculty of Education – a faculty one might assume to be the most knowledgeable on campus regarding OER as a teaching innovation – we did not think it likely from the indications we received from the respondents. We learned during our literature review, for instance, that there was some OER activity in the UFH Faculty of Education in 2007 and 2011 through the TESSA project (Harley & Barasa, 2012; Thakrar et al., 2009), but none of our participants from that faculty revealed that they themselves had any knowledge of OER. This lack of awareness appeared to be replicated at the institutional (managerial) level, as one respondent shared, “The institution doesn't know about OER as a whole, so it's not a big thing here. There certainly isn't any policy around it. There's certainly no making resources available for you to do these things.”

With UFH's bureaucratic institutional culture and a general lack of awareness amongst both individual lecturers and management (revealed in more detail below), there is no natural group or structure at UFH to start raising awareness in a deliberate and organised manner. With little awareness amongst management, there is no official strategy or ambition towards OER, which means that the administration is unlikely to play any role in awareness-raising activities. Given that lecturers lack permission to share their teaching materials as OER, the small proportion of lecturers who are aware of OER lack any formal incentive to spend time raising awareness amongst their colleagues. While they may be able to proclaim the virtues of OER use, the fact that they cannot share their own materials as OER does limit its potential appeal in terms of the overall enterprise.

At UNISA, half of the lecturers interviewed ($n = 3$ of 6) had at least a mild awareness of OER (less than at UCT, more than at UFH), due in large part to the awareness-raising activities of the institutional OER coordinator who organised workshops and seminars on the topic. With her high-level position in the Office of the Pro Vice-Chancellor, the OER coordinator enjoyed a solid level of institutional support in her OER campaigns.²⁷ This advocacy was supported by a long-term OER strategy (UNISA, 2014) adopted by the institution to promote OER. This strategy was, however, the result of high-level decision-making, and did not involve general

26 The CILT-based open champions were often supported with funding from donors such as the Shuttleworth Foundation and the Andrew Mellon Foundation which enabled them to promote OER within a unit, rather than as lone individuals.

27 <http://www.unisa.ac.za/Default.asp?Cmd=ViewContent&ContentID=27721>

staff members. The strategy calls for far-reaching changes to UNISA's business model, but because it was not yet policy, it did not appear to have been well communicated to the academics. With this in mind, the OER coordinator assumed that her colleagues had “not a clue” about OER, or, at best, their awareness was “limited”. One lecturer, when asked about the level of awareness in his department, agreed: “I would just say nobody knows about it.”

The majority of participants in our workshop said that they learned about OER through the UNISA OER coordinator's awareness-raising efforts (primarily through prior workshops and emails). A few also learned about OER from other colleagues who had attended prior workshops. In this managerial institutional setting, it was no surprise that much of the OER awareness-raising for individual academics had taken place through an official campaign. The management identified OER as a key priority going forward and was keen for its lecturers to understand more about it. This acknowledgement of the potential of OER might inspire more lecturers to incorporate OER into their course materials, but the fact that the institution holds copyright over teaching materials developed by staff means that this awareness would most likely not lead to academics choosing to share materials openly (as special permission would need to be obtained to do so). Indeed, the management itself would have to lead the way in deciding when and how future course materials were shared openly. Thus, lecturers' awareness of OER may be useful for increasing usage levels at UNISA, but it is management's awareness which dictates the broader strategy towards sharing those lecturers' teaching materials.

Table 4 compares the level of institutions' OER readiness according to awareness, showing high levels at UCT, low levels at UFH and medium levels at UNISA.

Table 4: Level of institutions' OER readiness according to awareness factor

Awareness: readiness	UCT	UFH	UNISA
If lecturers are agents of OER use	▲	▼▼	◀▶
If lecturers are agents of OER creation	▲	▼▼	◀▶
If institution is agent of OER creation	▲	◀▶	▲

	very low	low	medium	high	very high
Key: Level of OER readiness	▼▼	▼	◀▶	▲	▲▲

Capacity

While most interviewees stated that they were “fluent” or “highly fluent” in computer literacy (n = 17 of 18), their general technical skills did not necessarily translate into high OER-related capacity, as many were unfamiliar with the processes involved in searching for, identifying, downloading, using, creating, licensing, curating and (re)distributing OER. The presence of technology support staff on campus also did not necessarily mean that they enjoyed OER-related support, as technical staff were not always familiar with OER. The lecturers could build greater OER capacity among themselves (through online tutorials, practice and experimentation), but that would take time. Nevertheless, compared to the three factors discussed above – access, permission and awareness – lecturers have a good deal of control over this, as they themselves can develop their own OER-related capacity

through online tutorials, self-practice efforts and collaboration with like-minded colleagues, though this would take time.

At UCT, technical capacity was relatively high, sometimes at a personal level, depending on a lecturer's prior level of engagement with OER, but quite certainly at an institutional level where OER experts were available for consultation and support. For instance, in the regular "Teaching with Technology" workshops that have been offered through UCT's CILT, lecturers were provided with an opportunity to develop their OER skills and given an indication of whom to call upon for support.²⁸ This included legal support from the university's Research Contracts and Intellectual Property Services, the IP Unit in the Law Faculty²⁹ and the presence on campus of the legal lead of Creative Commons South Africa,³⁰ who could advise on the application of CC licensing issues and copyright management of teaching materials. Thus, no UCT lecturer was without access to the necessary technical capacity to engage with OER in a meaningful manner.

This did not appear to be the case at UFH, where some respondents were worried that they might lack the appropriate technical skills to participate in OER use and creation. They were also unsure whether they would be able to find useful assistance on campus, though they assumed that technology support staff could assist. This lack of capacity for OER engagement appears to be the result of both a "traditional" teaching environment (lectures in classrooms supported by "All Rights Reserved" textbooks, and printed materials for students, etc.) and a general lack of awareness around OER (which demands slightly specialised technical knowledge).

By contrast, UNISA academics stated that they were relatively fluent technically because so much of their work was mediated by computers and the internet. Though their teaching materials were provided in printed format to students, lecturers typically interacted with students via email and class-specific online chatrooms. Thus, the environment demanded a certain level of technical ability, some of which could be transferable to OER activity. Perhaps more importantly, the OER coordinator was also available to provide assistance with certain queries, even though the position was more managerial than technical.

There does not appear to be any relationship between the type of institutional culture that predominates at these universities and the level of OER-related capacity they have (Table 5). There is no reason to assume that a collegial one, for instance, has any advantages over a bureaucratic or managerial one in terms of what OER-related skills a lecturer develops. Nor does it suggest that any of them would be more effective in terms of providing institutional assistance to lecturers for OER adoption. While these different institutional cultures shape the processes by which lecturers or institutions develop OER-related capacity, they would probably not play a determining role in their outcomes.

28 <http://www.cilt.uct.ac.za/cilt/teaching-technology>

29 <http://ip-unit.org/>

30 <https://creativecommons.org/author/tobiascreativecommons-org/>

Table 5: Level of institutions' OER readiness according to capacity factor

Capacity: readiness	UCT	UFH	UNISA
If lecturers are agents of OER use	▲	▼	◄►
If lecturers are agents of OER creation	▲	▼	◄►
If institution is agent of OER creation	▲	▼	▲

Key: Level of OER readiness

very low	low	medium	high	very high
▼▼	▼	◄►	▲	▲▲

Availability

It is impossible to know, objectively, whether there are relevant OER of the requisite quality (for a specific anticipated use) available for lecturers at these three universities without having them first conduct an exhaustive search for such materials themselves. Most have yet to do that. Most interviewees did, however, believe that there were some useful OER available to them, some of which were discovered during our workshops when we asked participants to search OER portals for content. This process was a revelation for many, as most had never searched for OER via a dedicated OER repository, meaning that they had previously struggled to determine which materials were legally open for reuse and which were closed.

Availability at UCT

All of the lecturers we interviewed at UCT (n = 6) admitted that they had yet to undertake exhaustive searches for OER themselves, but they had some awareness of what was available online. Relevance was, however, a key concern, especially in terms of the degree of appropriateness of the materials in the South African context. Since most OER come from the Global North, many said that they would only want to use OER that is localised. As one lecturer stated, "It needs to be contextualised to Africa." In addition, when asked how they perceive the quality of most OER, half said "variable", that "it ranges", while the other half said that they were not yet familiar enough with what was available online to have an opinion.

When considering whether they themselves had any educational materials that were available to share, the lecturers also expressed relevance and quality concerns. For instance, one Humanities lecturer worried that it would be difficult to express her pedagogical intent through OER:

I teach through a notion of pedagogy of discomfort ... I rely on being in class and also demonstrating to [students] moments when I feel discomfort. And to use myself, I constantly use myself as a teaching example. And that kind of stuff would ... get lost. I don't think OER could adequately implement a pedagogy of discomfort and how it is imagined and thought through. It requires interaction with other people. ... If something makes me uncomfortable, then boy, there's something there that has to be interrogated. I don't know how OER would deal with that!

Furthermore, when asked to what extent they were concerned about the quality of their teaching materials, they revealed that they were relatively unconcerned about the materials in terms of teaching UCT students in person, but some hesitated at the idea of making them openly available online. Encapsulating this mild caution, one lecturer shared, "I don't really have concerns. I suppose a little bit nervous in case you put something there that's not quite right, but I don't have worries necessarily."

Yet for another lecturer, making her work open would produce great anxiety because of the potential exposure and scrutiny that could result from her colleagues. She was worried about "being found out and humiliated. It's taken a long time for me to actually feel like I belong at the university, like that I'm good enough to be there". Thus, for some, it may not be a simple decision to turn their in-class teaching materials into OER because it would expose materials that were developed for a student audience to the general public, including professional colleagues whose esteem they may be anxious to maintain.

UCT's collegial institutional culture obligates lecturers to deal with these anxieties individually. This is because the university has adopted a hands-off quality assurance approach that locates responsibility over quality concerns with the individual creators. It is based on the "pride of authorship" model (Hodgkinson-Williams, 2010; Hodgkinson-Williams et al., 2013), which assumes that the concern for one's own reputation would ensure that the creator only shares materials of the highest possible quality. It also assumes that anyone employed in a teaching capacity at UCT would produce materials that are of sufficient quality for sharing. This approach is efficient and economical from the administration's perspective,³¹ but for one interviewee it was not adequate. This lecturer would have preferred if there was "some process of evaluation for the production of [OER]".

Availability at UFH

Lecturers at UFH shared similar concerns regarding the relevance of OER for their particular teaching needs as users. One stated, "there's a lot of stuff that's just not applicable. Some of the stuff has snippets that are nice. [But] I seldom find things that I want to use as a whole. Because they just don't fit into what I want them for necessarily". Connecting the notion of relevance with that of quality, the lecturer went on to say, "Quality is as context demands."

Other UFH lecturers agreed and were even more pointed in their criticism of the OER they had seen. "Often there are flaws in them," one said, "so I'm very concerned about the quality of my teaching." Another equivocated, saying OER quality was "on a range ... you know, you get some really good stuff and you get some stuff that's questionable". The key reason was because "OER ... isn't peer-reviewed and there's not much in terms of quality control ... I would imagine that the perception of many academics would be that, well, it's not really an accredited space, so you know, you don't know what the quality is".

This concern about the fact that most OER is not formally peer-reviewed is shared by many others in Africa (Mawoyo & Butcher, 2012) and elsewhere (Windle, Wharrad, McCormick, Laverty & Taylor, 2010). In comparison to the peer-review process that

31 According to Hodgkinson-Williams (2010, p.14), materials uploaded onto UCT's former OER portal (OpenContent) were "only moderated to check for potential third-party copyright infringements. Users are encouraged to rate the items on the University's OpenContent site; this being the most democratic and inexpensive (albeit risky) QA process". That was the case when OpenContent was still running. The new OpenUCT repository (which curates both OER and Open Access content) does not have a rating or review mechanism.

characterises research article production through academic journals, most OER do not go through a similar quality assurance process, thereby reducing their comparative level of attractiveness for potential users. However, it is worth stating that, for most of the UFH respondents we spoke to ($n = 5$ of 6), this was a relatively hypothetical concern since most had not engaged with OER prior to the workshop. It may be possible that some of these concerns would be allayed with greater exposure to OER.

However, as potential OER creators (which, technically, they are not, since they do not hold copyright over the teaching materials that they create), UFH lecturers did not question that their work might be relevant for others. They assumed it would be, but worried about the amount of time and energy it would take to make their materials open. As one lecturer stated, “That would mean a lot of work trying to package it in a generic way that is not suited to a particular course. It’s one thing to make a particular resource and make it available to your own students and spend an hour or two or three hours on it. To package it for [the public] ... with a shell and all the connections that would make it generic would take 10 times the amount of time.”

Regarding whether they were concerned about the quality of their own teaching materials, two lecturers said they were concerned and therefore would not want to share their work as OER just yet; two others said they were mildly concerned and would have to reassess their work with an eye to making it public before doing so; and another two said they were not concerned and would be happy to share their resources.

Availability at UNISA

Compared to their UCT and UFH colleagues, UNISA lecturers were quite positive about the potential of OER in their teaching, especially with regards to relevance. One enthused that, in her practically minded discipline which is well known for collegial sharing, “There’s a whole lot of stuff available. And everybody wants to show how to do things.” Others, such as one Humanities lecturer, admitted that, although there were “endless resources” in his broader field, there were “far fewer resources” on his own particular niche subject matter. He found that, because one person at Yale had provided a useful course on his topic, no one else seemed to be bothering to contribute other materials with a different perspective.

Others also wished more locally relevant materials were available. For one lecturer, the OER she found online tended to be “Northern ... not so much in South Africa”. Another stated similarly: “A lot of international resources, but it would be great to find something more local. ... It’s very difficult to find something for a South African context to refer [students] to.”

Another lecturer believed that OER could provide greater opportunities to fulfil his pedagogical intent: “It can do a lot, because I mean, already there are so many things that you’ve got, you’ve got videos, you’ve got slides, you’ve got your case presentations, so you can apply to different pedagogical contexts, depending on what you want to do in class.”

A similar range of responses emerged in UNISA lecturers’ assessment of OER quality. One lecturer was satisfied with the OER she had engaged with because the materials came from reputable institutions: “The little bit that I’ve encountered has generally been quite good, especially because it’s been stuff from Harvard and Yale.” Others admitted that they “still have to look at it more carefully”; they “don’t know. I haven’t seen enough to kind of evaluate it. I’m hoping there’s some kind of quality standard”.

By contrast, one avid OER user suggested that there should not be an externally determined quality standard (such as would be enforced through a formal quality assurance mechanism), but rather that “that’s where there’s a shifting role of an academic now. It’s not producing the content, but it’s being able to deliberate what is good content, what is good knowledge”.

For those with greater familiarity with the breadth of OER offerings, their view on OER activity was mixed. This appeared to be the case across the universities. As one UNISA lecturer stated, “Some [OER] are good, some are completely ... it’s not actually bad quality, it’s just quality that you won’t use in a university set-up. It’s not material that you would integrate into a course. It may be stuff that will be for a lay person in a community.”

As potential OER creators (which, again, they are technically not because they do not hold copyright over their teaching materials), UNISA lecturers did not question whether their work might be relevant for others. As distance educators with class sizes that can often be in the tens of thousands, they did not doubt the potential relevance or impact of their work. Most also felt a certain level of confidence in their materials because they are vetted by the relevant tuition committees, acting as a sort of quality assurance mechanism for all UNISA teaching materials. Yet, as would be expected, some nevertheless do feel a little anxious about the quality of their materials, especially when they think that they might be made publicly available. As one lecturer shared, “My concern is how I will be judged and reviewed. You know, the opinions and obviously peer review and the commentary you’ll get afterwards.”

Presumably, however, the UNISA administration (the copyright holders of the lecturers’ teaching materials) feels that its lecturers have created relevant, high-quality materials that can be shared openly under the UNISA banner. Having developed an OER strategy (UNISA, 2014) with the intention of collating, quality-checking and licensing its collective teaching materials as OER, the institution’s centralised approach would likely take steps to assuage any anxiety lecturers feel about the process.

Table 6 summarises the level of OER readiness at each institution when focused just on the availability factor, but in sum “availability” is a complicated OER adoption factor because it includes the perceptions of both users (lecturers) and creators (lecturers or institutions) in considering the quality, relevance and utility of potential open teaching materials.

Table 6: Level of institutions’ OER readiness according to availability factor

Availability: readiness	UCT	UFH	UNISA
If lecturers are agents of OER use	▲	◀▶	▲
If lecturers are agents of OER creation	▲	◀▶	▲
If institution is agent of OER creation	▼	◀▶	▲

Key: Level of OER readiness

very low	low	medium	high	very high
▼▼	▼	◀▶	▲	▲▲

Volition

The final factor in the OER adoption pyramid is motivation – or volition. A prominent theme in OER studies (He & Wei, 2009; Pegler, 2012; Reed, 2012; Rolfe, 2012), motivation is often invoked as a variable when analysing the dynamics around OER adoption in the Global North, since many of the other factors discussed above are often already positively met. Thus volition – at an individual and/or institutional level – is often the key to whether lecturers at well-resourced universities use or create OER. And it is the factor that lecturers (as OER agents) have the most personal control over, because volition emerges from within, even as it is influenced from without.

As discussed above, when it comes to assessing volition, it is important to determine who the agent of OER action is. For OER use, it is typically a lecturer. For OER creation, it can be either a lecturer (as at UCT) or an institution (as at UFH and UNISA). However, in either case, individual and institutional volition shapes the other, even if only one is ultimately responsible for action. This will become clearer through the analysis below.

Volition at UCT

As has been shown, UCT lecturers enjoy good access to all of the prior factors governing potential OER adoption. Thus the key factor for them in deciding whether to actually use or create OER is their individual sense of volition.

All six interviewees we spoke to at UCT said that they had used OER, but only three had done so deliberately (seeking out materials from the Khan Academy, TED Talks and MIT OpenCourseWare). The other three had happened to use materials from Wikipedia and Wikimedia Commons, though they did not explicitly understand that these were OER. In addition, two of the interviewees said that they had created OER, while four said that they had not.

Motivating variables

The reasons that UCT lecturers gave for adopting or not adopting OER were often idiosyncratic. Users said that they often found pedagogical value in OER. As one lecturer said, “when there are concepts that are difficult to explain, seeing how other people have explained it is useful, providing another perspective”. Thus OER opened up a multiplicity of perspectives or voices that may have been missing, especially if their courses were based on a single textbook.

Some also believed an open approach embodied their educational values. One of the lecturers stated that they saw adopting OER “as a social responsiveness activity”, which is one of UCT’s key performance-assessment pillars. Others liked the fact that they “don’t have to pay for the stuff”. The aspect of no cost to the user was appreciated by all lecturers at UCT.

Demotivating variables

Those who had yet to use OER also provided idiosyncratic rationales for their approach towards OER. For instance, one young lecturer who said that he had not been in his department long enough to grasp what the departmental social norms or expectations were, saw this as a “mindset” problem, in that many non-user lecturers – especially “older” ones, in his estimation – had a different conception of what higher education is or should be. “I

think the greatest [obstacle to OER adoption] is a traditional view of ... higher education versus a very swiftly changing picture of higher education.”

This same young lecturer had a particular “mindset” when it came to OER creation. His relative youth made him feel possessive over his work. He said, “There’s a lot of my own research that went [into this course material] and sometimes I really feel a bit selfish. Like I don’t just want to give my brand new research away, although, you know, it is for the greater good of education.” This was a person who was very interested in the Open movement, but because of his career positioning felt contradictory imperatives regarding the sharing of his work.

Another lecturer felt a tension in terms of competing values, which in this case emerged from her experience of the financial opportunities afforded by possessing full copyright over one’s work.

I’m the treasurer of our national organisation and because the university’s been forced to jack up their copyright, our association gets a whopping great big cheque these days from DALRO [the Dramatic, Artistic and Literary Rights Organisation], the licensing rights [group in South Africa]. So it’s actually made our association fairly wealthy. So as the treasurer I suddenly became aware of how copyright can be really a big income, you know, for our association. And also what the implications of that might mean, actually encouraging my colleagues around different South African universities to put an article from our journal into the curriculum, in order to generate income for the association.

Even though most of the resources she referenced in this statement were research outputs, the financial implications of this experience also shaped her perception surrounding the potential value of owning full copyright over her teaching materials.

Institutional culture

Because UCT lecturers work in a context characterised by a collegial institutional culture, this means that they enjoy a high degree of personal autonomy in their actions. But it also means that the norms and expectations established by their colleagues have a powerful influence on the types of activities they end up choosing to engage in. For instance, lecturers face significant peer pressure to turn out research publications on a regular basis, with this expectation forming part of the prevailing social “ethos” (Trotter, Kell, Willmers, Gray & King, 2014, p.85). This is not the case yet for the adoption of OER across the institution, but individual lecturers revealed that their social (departmental and disciplinary) context did, at times, inspire OER engagement.

One lecturer stated that, because she worked in a department with colleagues who believe in openness, “I have to actually model the practices that have been a part of the mission of the centre.” She has internalised the open ethic herself and influences others she works with to do the same. “It’s a two-way street,” she said.

She also found inspiration in the OER that her virtual, disciplinary colleagues were creating, realising that she could create similar OER too. “For me it was, ‘Oh, other people have made this and that.’ And you see their resources on Twitter and you think, ‘actually, I

can do that'. That's a personal thing, as well as that it's supported by my colleagues." Her casual, everyday engagements with OER allowed her to gain confidence in sharing her own materials.

Institutional policy de/motivations

In addition to the interior, social and cultural influences discussed above, lecturers were asked about their views about whether an institutional policy encouraging OER adoption would influence them. Their responses ranged from dismissive to enthusiastic. Thus, one senior scholar retorted, "It would probably annoy me! It depends who wrote the policy and what the purpose is! But ya, being told what to do ... unless it's aligned with what I want to do."

This sentiment was refined by another UCT lecturer who stated, "The problem with making it a policy – maybe I'm thinking in too stringent words about policy – is that if people had to do it, it would become a burden. You want it to be driven by teachers who are interested in it I think." These responses illuminate the ideals of the collegial institutional culture from which they emerge. They valorise individual interest and effort, and are premised upon the idea that internal motivation provides the strongest and most sustainable catalyst for action.

Those who imagined long-term OER contribution in their careers thought that a policy focusing on awards and recognition would be a positive feature. The perception was that this would help raise the profile of the work that otherwise goes unnoticed by the institution. However, in a context where lecturers enjoy positive policy, financial, technical and legal support – all of the structural elements necessary for engaging in OER activity – UCT lecturers did not appear to view these institutional policies and support mechanisms as "motivating" factors in their OER (or non-OER) activity. They saw them instead as "hygienic" factors (Herzberg, 1987; Pegler, 2012) that simply create the conditions necessary for *allowing* them to act on their own personal volition regarding OER, should this exist.

The OER support mechanisms in place at UCT are typically the product of hard-fought advocacy efforts by individual OER champions and initiatives that did not push for a mandate on OER activity (Czerniewicz et al., 2015; Hodgkinson-Williams et al., 2013), but were founded instead on the principle that action that stems from personal volition produces the best, most sustainable outcomes. Hence, despite the challenge of mobilising large numbers of adopters, the approach adopted at UCT appears to be consonant with the collegial nature of the institution.

Volition at UFH

In contrast to the UCT scenario, there appeared to be an almost total absence of volition regarding OER activity at UFH, mostly due to the fact that OER had never been able to move beyond the limits of the other factors relating to OER adoption, especially awareness (for lecturers and the institution) and permission (for lecturers). Without these factors being positively met, there has been little opportunity for motivation to develop at the university, among either management or lecturers.

When asked who had used OER, one interviewee said yes and five said no, but even the interviewee who answered in the affirmative had only used OER to check the quality of her own teaching materials, not to incorporate them into her teaching practice. Meanwhile, none of the interviewees had ever created OER.

Motivating variables

Most of the UFH interviewees reported that the values underpinning OER adoption aligned with their personal teaching philosophies and pedagogical interests. One lecturer imagined tapping into OER to “get perspectives other than my own”. A colleague concurred, redirecting the focus of OER to providing “the students with something other than what I had been teaching them”. The ease with which OER can be obtained offered a new source of potential teaching and learning materials, which was considered worth exploring. Thus, for UFH respondents, OER volition was seen as something to act upon in the future rather than something that existed prior to our workshop intervention.

Demotivating variables

All of the UFH lecturers were able to list a number of obstacles that would stand in the way of actual OER engagement (beyond the awareness and permission issues already discussed). This helped explain the current lack of volition as well as the challenge of building it going forward.

One obstacle to the development of OER volition was that of pedagogical approach, in that, as one lecturer shared, OER is “viewed as an add-on, as opposed to an integrated approach and so there is the perception that it's going to just add more work ... rather than being part of the teaching itself”.

Another challenge was that some lecturers worried that if they shared their teaching materials as OER, they might be misused or misconstrued by users. Though the lecturers accepted that others would be free to revise their materials if the necessary open licences were associated with those resources, they did not necessarily want to be associated with the resulting content if it misrepresented their views. One veteran lecturer stated that she had felt embarrassed by how another educator had used her presentation materials (which she had shared privately), making her think twice about releasing her teaching resources in the open with her name on them.

In addition to these challenges, it did not appear that the institution, which holds copyright over the lecturers' teaching materials, had any volition to share them as OER, at least according to the interviewees. Summing up the perspective of all of the interviewees, one said, “I don't think the university has any vision in that regard. I don't just mean absence of positive vision. It's just not something [that is on their radar].” This lack of volition is most likely due to the fact that, like most lecturers on campus, university management appeared to be similarly unaware of OER as a concept. When asked about the level of awareness administration had about OER, one said, “Little to none. Because I don't think most people know what it is.”

Institutional culture

In a university with a bureaucratic institutional culture where strategies and policies are inconsistently applied (at least in the minds of the interviewees, as revealed below), UFH lecturers said that rather than waiting for strategic direction from the administration for their teaching activities, they often relied on the norms and practices determined by, primarily, colleagues within their departments or, secondarily, their disciplines.

At the departmental level, colleagues' relative lack of OER awareness did not provide inspiration or expectation for independent OER adoption. While one person in the Education

Faculty said that the level of “sharing is reasonably high” in the faculty, it was “not in an OER context, so it’s an informal approach to sharing”. Another colleague agreed, stating, “in my discussions with people from the Education Faculty, there’s not a lot going on there”.

At the disciplinary level, lecturers did not always find interest or support for OER. For instance, one lecturer stated that the Law Faculty, in which he works, “is designed around commercial economic interests. Law is generally geared towards the protection of individual proprietary interests. OER is a threat to this way of thinking”.

But beyond these departmental and disciplinary concerns, the lecturers also suggested that the broader institutional mores discouraged pedagogical innovations such as OER. This stems from what one described as a “conservative academic culture”, or what another called a “static group thing, where people aren’t open to interrogating what their role as a teacher is, or what the role of text is ... in their teaching practice”. They suggest that there are “in-built institutional and philosophical constraints”, essentially meaning that “change is difficult”, especially with regards to a disruptive pedagogical innovation such as OER.

Furthermore, this aversion to sharing appeared to go beyond OER. As one lecturer stated, “There is I think a reluctance to just share ... not until you’ve published it.” While this assertion relates to the sharing of research outputs, it was seen by lecturers as a useful indicator of the tepid reception OER sharing would most likely also have.

Summing up the institution’s challenge from a more global perspective, one lecturer suggested that the academic culture at UFH was not unique, that “a large number of lecturers or academics in developing countries would tend to ... favour traditional methods of teaching rather than thinking outside the box. So it’s a conceptual leap”.

Institutional policy de/motivations

If none of the agents of potential OER activity have the necessary volition to engage with it, might a policy change that? In response to this question, lecturers revealed the challenges of using policy as an instrument of motivation in a bureaucratic institutional culture. Many were dubious of the value of a policy, particularly in terms of how it would be operationalised.

No, it wouldn’t [help]. Wait a minute. A policy [which says] ‘this is our policy and you’re now supposed to do this and this and this’? It wouldn’t. If somebody in management had a vision or somebody in the university had a vision, a policy was created, that policy resulted in a support structure – an active, friendly support structure – that might influence it. But not because it’s a policy on paper. In fact, probably the contrary. Because we are an institution full of policies that are either not applied or applied on a discretionary basis.

Some lecturers were concerned about the impact a policy would have on educators’ own sense of volition. “My opinion is that policy breeds compliance, but doesn’t build ... it doesn’t get the kind of approach that you want. So yes ... people might become compliant and they might just put something up for the sake of it, but then I think there’s a compromise of quality and a compromise of real intellectual sharing.” Others were ambivalent, but thought that a policy could lead to some positive outcomes, such as a way forward for individual lecturers to share their educational materials.

While there appeared to be an overall perception that policy would add to lecturers' sense of burden, there was also the sense that it could also clarify responsibilities and provide an opening for individual action. "Enabling policies are few and far between. They're normally there to monitor and constrain. So I'd want one that was very open and brought across the point that we're in a situation where the sharing of knowledge is a positive thing."

Addressing the question of policy, we asked UFH respondents if OER volition could be somehow incentivised. Most believed that it could, though this would require awareness and vision on the part of the administration, which did not yet exist. Nonetheless, it was suggested that some measures, such as incorporating OER activity into performance assessment processes, could help. Another thought that a good incentive would involve "some sort of recognition", which could spur a sense of competitiveness between colleagues.

Others thought that the real "incentive" would be to see other colleagues adopt OER as part of their community's work practice. This could be initiated with support from the institution and maintained through collegial interaction. Once under way, it could be sustained through a community of practice which would help raise awareness through "exposure to benefits". As one lecturer stated, "If I was surrounded by adopters of OER, I would certainly be more creative in my use of same. I am not surrounded by such influences."

At UFH, the sensitivity to peer activity appeared to have a powerful impact on lecturers' sense of what they thought they should be doing as educators. While there were those who also preferred to act independently, most looked to what their peers were doing to guide their actions, which may be due to the lack of strategy and direction provided by the administration. This stands in contrast to the more individually minded behaviour of lecturers at UCT and the more managerially directed approach at UNISA, which we will now examine.

Volition at UNISA

UNISA lecturers revealed a modest level of personal motivation to engage in OER activity. This appeared to be as a result of the advocacy and training efforts of the OER coordinator, an open-minded approach to teaching methods informed by the unique challenges of correspondence-based distance education, and a solid level of institutional support. Lecturers' personal volition at this university, with its managerial institutional culture, did not, however, appear to have a major bearing on whether or not they ultimately engaged with OER. What mattered most were management's desires – or *institutional* volition. With an IP policy (UNISA, 2012) that precludes UNISA academics from sharing their teaching materials as OER, the institution itself has become responsible for OER creation, a responsibility that it has said it intends to act upon (UNISA, 2014).

When asked who had used OER, five interviewees said yes and one said no, though two of the five admitted that they had done so inadvertently, not knowing that the materials were OER at the time (it only became apparent to them during the workshop that they had used OER before). In addition, one interviewee said that he had created OER and five said that they had not. However, upon further discussion with the interviewee who said that he had created OER, we determined that, even though he had made a variety of videos open to the broader UNISA community via the university's e-learning platform, these materials were

not, strictly speaking, OER, because they were not open to the public and, legally, only the university could openly license them as it held copyright over these resources.

The six interview respondents (and 17 workshop participants) we interacted with at UNISA revealed a high degree of interest in OER as it was a concept that was promoted by the institution. Our workshop was one of many that occurred during the year for staff members, raising awareness about OER and providing practical training on how to identify, use and share OER.

Motivating variables

For many interviewees, their interest in OER stemmed from the fact that the underpinning open ethic aligned with their own educational philosophies. As one stated, “Education should be free actually. So I’m not really that much concerned about sharing [i.e. not fearful to share]. I think we should share as academics so that education is provided freely to everyone.” Another colleague agreed, going so far as to say that, once UNISA lecturers learned about the virtues of OER, they would need no further incentives to embrace it.

Nevertheless, others saw quite specific, implicit incentives for OER use, such as its pedagogical value. “In an OER, you can bring together several different thinkers in the field and then put them together and then expose your student to a wider range of thought.”

There was also personal value for the lecturers in terms of saving time, boosting quality and raising their personal profiles amongst their peers, serving as a kind of “marketing” function.

Demotivating variables

The lecturers that we interviewed did not focus on the same kinds of demotivating variables with us as was common at the other universities. That is, since they worked in a context with a managerial institutional culture, they tended to attribute any demotivating elements to the institution and its policies, or lack thereof. We discuss those variables below.

Institutional culture

The interviewees described their context as broadly open to innovating with OER. Summing up his colleagues’ interest in OER, one lecturer stated, “There’s a fairly good excitement, because we know that there is potential within the online environment and there’s no resistance from anyone here in our department to go online.”

Nonetheless, they also recognised that there were challenges to raising the levels of interest in OER amongst academic staff. The first, and perhaps the greatest, obstacle was dealing with the legalities surrounding OER in a managerial institutional culture where lecturers do not hold copyright over their teaching materials, and where they do not always know the rules and protocols of engaging in non-traditional practices. More than one lecturer stated that they were worried about what the institutional response would be to them deviating from the usual curricular practices, while others cautioned that even though some individuals might be interested in sharing their work, many others would be hesitant due to a more cautious mindset.

Developing country people actually think that their stuff’s not good enough and there’s a feeling around ... like this deficit view of their work. And whereas

the Global North is more – I think ego, but not always ego – but it's like they've got that confidence. It's like an online confidence that they're sharing and they're like, 'I made this and I did that.' And I find even with research, African scholars are very ... they don't like to critique one another's stuff, to put themselves out there.

Institutional policy de/motivations

When asked to what extent a policy on OER would influence their choice to create and share OER, all respondents had strong, though varied, opinions. For three of them, policy was key. One lecturer stated without hesitation: "Well I'd have to abide by it, for sure. They're quite strict about policy and procedure. [After all,] we're quite disciplined as an institution." Another colleague agreed, "but [only] if we had the time and resources available". This sentiment was echoed by the most pro-OER practitioner of the group, who wanted a policy because it would place some level of responsibility with the institution. "I think if the policy can drive infrastructure change and align things up in terms of the organisational structure where money is invested, in terms of resources, then definitely. I think it would become a motivating factor for us in terms of targeting or setting ourselves targets and goals."

Though one lecturer believed that sustainable OER adoption should emerge from "one of your personal traits, to want to do something like that", she did acknowledge that "the most common answer would be an incentive" and that a "monetary incentive always encourages some sort of response". Another lecturer concurred, saying that "other" staff members (though not he himself) are heavily influenced by financial and temporal incentives, such as monetary incentives based on key performance areas and time off.

Others were more hesitant about the value of a policy if it restricted educators in any way. They preferred an environment that was enabling and encouraging rather than limiting. One of the more established lecturers dismissed the idea of a policy approach, believing that individuals would do what they wanted regardless of policy, and that individual values and mindset were more predictive of how lecturers would respond to OER.

At the time of writing, UNISA had not developed a formal OER policy, but the lecturers were aware that the university had some level of ambition for greater institution-wide OER engagement (due to the hiring of an OER coordinator and the provision of OER workshops). They were just not sure what that ambition entailed. Lecturers shared their anxiety about being in the dark regarding the administration's OER plans.

For this reason, some would prefer that the institution not only communicate clearly to the staff about OER, but take greater responsibility for promoting it. "For me the most critical thing is the institutional-driven issue. Because if it drives it, then ... everything else – the lack of skills, capacity, the capacity for academics to engage with these environments – [will be dealt with]." This idea applied not only to individual action, but seemingly to every level of the university. As one lecturer explained, operating in a policy-driven environment meant that his "department won't really do anything until they get a proper directive or policy or something from the management".

While UNISA does not yet have an OER policy, it does have an OER strategy (UNISA, 2014), which has shaped a number of activities to date. The OER strategy reveals a high level of institutional volition regarding OER use and creation, based on moral and practical grounds. According to the strategy: "OER cannot be considered as marginal, socially

acceptable, nice-to-have activities. They must be integrated into mainstream institutional processes if we wish to harness the true potential of OER in our transformation process and if the shift to this paradigm is to be economically and practically sustainable” (UNISA, 2014, p.4). With this perspective in mind, management has developed a comprehensive strategic approach to the incorporation of external OER into UNISA courses, as well as the sharing of UNISA courses and course components as OER.

In addition to the OER strategy, the university has committed financial, intellectual and technical resources to this ambition. It established the position of OER coordinator in the Office of the Pro Vice-Chancellor,³² initiated a series of workshops and training sessions to increase academics’ OER literacy, signed the Paris OER Declaration and the Berlin Open Access Declaration, and formalised a collaboration with the OER Universitas (Singer & Porter, 2015) as a founding anchor partner (UNISA, 2014).

These high-level initiatives reveal that the most meaningful action regarding OER is located within the managerial strata at UNISA, where policy and other structural elements are controlled. Personal volition and cultural norms might create greater buy-in for the academics whose outputs will be marshalled for the management’s ambitions, but these are not the modes of motivation that will in all likelihood scale and sustain activity at UNISA. In this context it appears that institutional volition matters most.

Table 7: Level of institutions’ OER readiness according to volition factor

Volition: readiness	UCT	UFH	UNISA
If lecturers are agents of OER use	▲	▼	▲
If lecturers are agents of OER creation	▲	▼	◀▶
If institution is agent of OER creation	▼▼	▼▼	▲▲

Key: Level of OER readiness

very low	low	medium	high	very high
▼▼	▼	◀▶	▲	▲▲

In sum, while UNISA lecturers are the proper unit of agential analysis for OER use, this is not the case for OER creation. University management, as the copyright holder of the institution’s teaching materials, fills that particular role. However, unlike UFH management, which has no apparent ambition to share its teaching materials openly beyond the university, the UNISA administration has developed an explicit plan to openly share its vast collection of content. The materials would be released under the UNISA brand, allowing it to “extend its reach and entrench itself as a major knowledge producer and distribution hub for higher education” (UNISA, 2014, p.4). While lecturers’ volition regarding OER creation will likely not make a major difference in whether or how this is achieved, they will nonetheless be able to participate in a large-scale, collective OER creation process that would likely make a much more substantial contribution to OER provision than the voluntary, individualistic approach at UCT, should UNISA’s OER strategy be operationalised.

³² These positions – of OER Coordinator and Pro Vice Chancellor – were staffed and operational at the time of research, but have since been removed, potentially affecting the institution’s commitment to OER activity going forward.

Discussion

In this section, we discuss in greater detail the answers to our research questions and distil the key implications of our findings. First, we consolidate the knowledge we have gained about the factors shaping OER adoption and how their differentiation through the OER pyramid aided in our analytical work. Second, we briefly discuss the importance of identifying the proper units of agential analysis when it comes to OER use and OER creation. Third, based on the insights gained from the prior two points, we compare the three universities' levels of OER adoption readiness. Fourth, we consider the role that institutional culture plays in shaping lecturers' adoption of OER. Through these four sections, we are able to answer our two subsidiary research questions: (1) Which factors shape lecturers' OER adoption decisions? (2) How does an institution's culture shape lecturers' adoption of OER?

Lastly, bringing together all of the insights that have emerged from this research, we then answer our primary research question: Why do South African lecturers adopt – or not adopt – OER?

Factors shaping OER adoption decisions

When we began our research, we knew that OER adoption would be influenced by a number of factors and assumed that some would be more important than others at different institutions. This assumption was borne out in our research. However, as we analysed these factors in detail, it became clear that some were essential for OER activity, while others were simply sub-components within broader factor categories that influenced *how* adoption took place or not, but not *whether* it did.

Based on the data emerging from our research, we developed the OER adoption pyramid which consolidates the myriad essential OER adoption factors into six categories: access, permission, awareness, capacity, availability and volition. They are layered sequentially, moving from factors that, from the lecturers' perspective, are largely externally defined to those that are more individually determined. The pyramid visualises the relationship between these factors and highlights the fact that, ultimately, only agents who possess all six of these attributes at the same time (even if in some modified or attenuated fashion) can engage in OER activity.

We found that the pyramid offered a useful schema for analysing OER adoption activities (or their potential) at each university. It allowed us to impose a measure of order and clarity over a number of factors that had previously appeared random, idiosyncratic or even equivalent in importance. The pyramid allowed us to sequence and prioritise these factors in order to facilitate better comparability across institutions and a clearer understanding of the relationship between these various factors.

Thus, while we believe that we have identified the six essential factors determining *whether* OER adoption can happen in any HEI context, the specific factors shaping (enabling, motivating or impeding) OER adoption decisions at the three universities are discussed below according to the research questions guiding this study.

Unit of agential analysis: Lecturers or institutions?

When we initially framed our research questions, we were heavily influenced by our experiences at our home institution (UCT), with its collegial institutional culture and an IP policy that allows lecturers to hold copyright on their teaching materials. This means, regarding OER adoption decisions (for use and creation), we assumed lecturers would be the units of our agential analysis.

As we learned more about the other two research sites, we realised not only that they had different institutional cultures, but that they had IP policies which made the institution the unit of agential analysis when it came to OER creation. The implications of this realisation for us were profound in that they required assessing OER activities (and their potential at a site) from a very different perspective than we had anticipated. Having initially prioritised the agency of lecturers for both use and creation, we then broadened our scope to include institutions as potential agents of creation.

Though this made for a cumbersome analysis at times – tacking back and forth between the two agents – it clarified who was responsible for what in potential OER adoption activities and sharpened our understanding regarding what was possible at a given site.

OER adoption readiness at three South African universities

The OER adoption profiles discussed above shed light on how the six factors of the OER adoption pyramid shape OER engagement at each of the three universities examined in this study. While these profiles are intended to clarify where the obstacles and opportunities lie regarding OER use and creation for both lecturers and institutions, we can also visualise these profiles in a concrete way that allows for clearer comparative analysis. These distillations can then provide a useful shorthand for assessing each university's "OER readiness" for use and creation.

In our research, we asked a variety of questions to ascertain the level of OER readiness for each of the institutions, as discussed in detail above. However, the questions necessary to assess an institution's OER readiness according to the six factors can be reduced to those listed in Table 8. The answers to these questions not only allow us to create the OER readiness tables that follow, but also allow other researchers to conduct similar investigations at the institutions that they are interested in assessing.

Table 8: Questions to ask OER users and creators – whether lecturers or institutions – to assess OER readiness at an institution (starting from the bottom factor)

Factors	Questions for potential OER users	Questions for potential OER creators
Volition	<ul style="list-style-type: none"> Do you have any desire to use OER? 	<ul style="list-style-type: none"> Do you have any desire to create and share your teaching materials as OER?
Availability	<ul style="list-style-type: none"> Have you found OER online – of acceptable relevance, utility and quality – that you can use? 	<ul style="list-style-type: none"> Do you hold copyright over teaching materials – of necessary relevance and quality – that you could license and share as OER?

Factors	Questions for potential OER users	Questions for potential OER creators
Capacity	<ul style="list-style-type: none"> • Do you know how and where to search for and identify OER? • Do you know how the different CC licences impact the ways in which you can use an OER? 	<ul style="list-style-type: none"> • Do you know how to license your teaching materials so that they can be shared as OER? • Do you know where (on which platforms) you can upload your materials as OER?
Awareness	<ul style="list-style-type: none"> • Do you have any knowledge of or experience with OER? • Do you understand how CC licences differentiate OER from traditionally copyrighted materials? 	<ul style="list-style-type: none"> • Do you have any knowledge of or experience with OER? • Do you understand how CC licences differentiate OER from traditionally copyrighted materials?
Permission	<ul style="list-style-type: none"> • Do you have permission (from your curriculum committee, etc.) to use OER for teaching? • Does the desired OER allow you to use it in your specific context (e.g. no CC-ND licences on items that will be sold as course material)? 	<ul style="list-style-type: none"> • Do you possess copyright over teaching materials that have been developed at your institution?
Access	<ul style="list-style-type: none"> • Do you have (stable) electricity provision? • Do you have (stable) internet connectivity? • Do you have the necessary computer hardware for OER adoption? 	<ul style="list-style-type: none"> • Do you have (stable) electricity provision? • Do you have (stable) internet connectivity? • Do you have the necessary computer hardware for OER adoption?

With the answers to the above questions in hand, we can create colour-coded OER readiness tables showing the universities' varying levels of OER readiness according to three key elements:

- the six factors of the OER adoption pyramid;
- the potential agent of OER activity (lecturer or institution); and
- the particular focus of OER adoption (use or creation).

As above, we differentiate between five levels of readiness corresponding with a red-to-green colour gradation: **red** being very low, **orange** being low, **yellow** being medium, **light green** being high and **dark green** being very high. These assessments are based on the evidence discussed in the profiles above.

OER readiness if lecturers are the agents of OER use

Table 9 shows the universities' levels of OER readiness when lecturers are viewed as the agents of potential OER use. Following the layered sequence of the pyramid – examining factors moving from the base of the pyramid to the top – we see that all the universities have the necessary infrastructural access for lecturers to engage with OER use, though access at UFH is less stable than at UCT and UNISA. All provide the lecturers with good levels of permission to use OER in their coursework, with UCT and UNISA even encouraging them to do so. OER awareness amongst lecturers is quite variable, ranging from relatively high at UCT to very low at UFH and medium at UNISA. A similar profile emerges for lecturers' capacity to use OER: high at UCT, low at UFH and medium at UNISA. For availability,

the levels shown are based partially on what lecturers said they believed to be the case for them, a determination which was, in many cases, hypothetical due to a lack of prior searching for OER. Thus we rated OER use availability for lecturers at UCT as high, at UFH as medium and at UNISA as high. Lastly, lecturers’ volition to use OER ranged from high at UCT and UNISA to low at UFH. One of the key reasons for the low volition at UFH was low OER awareness.

Table 9: Level of OER readiness by factor if lecturers are the agents of OER use

OER adoption factor	UCT	UFH	UNISA
Volition	▲	▼	▲
Availability	▲	◄►	▲
Capacity	▲	▼	◄►
Awareness	▲	▼▼	◄►
Permission	▲▲	▲	▲
Access	▲▲	◄►	▲▲

Key: Level of OER readiness

very low	low	medium	high	very high
▼▼	▼	◄►	▲	▲▲

The virtue of Table 9 is that it reveals, at a glance, the comparative strengths and weaknesses for each university regarding potential OER use amongst lecturers. This means that it not only provides a visual depiction of the current state of affairs at each university, but opens up possibilities for those who would seek to increase OER use at a given site through some sort of intervention. For instance, if a person, group or funder wanted to try to increase OER use at UFH, then they would do well to focus on raising lecturers’ awareness, as it is very low at the institution and has knock-on effects regarding capacity and volition.

OER readiness if lecturers are the agents of OER creation

OER use is just half of potential OER adoption activities. The other half is OER creation. As has been seen, institutional IP policies govern whether lecturers are allowed to create OER or not. Thus we need to visually distinguish between lecturers’ use and creation activities at each university. Table 10 shows the universities’ levels of OER readiness when lecturers are viewed as the potential agents of OER creation.

It is not necessary to repeat the analysis for each factor here as we did for Table 9, but we will point out the key insights from this visualisation. The first is that, due to IP policies that vest copyright over lecturers’ teaching materials in the institution, lecturers at UFH and UNISA have very low levels of permission to create OER. While lecturers at these two universities may theoretically have the possibility of appealing to university management for permission to release selected materials as OER, for the most part the IP policy represents a high legal barrier to OER creation. It also contributes to the low and middling levels of OER awareness, capacity and volition at these two universities. This stands in contrast to the situation at UCT, where lecturers hold copyright over their teaching materials and are encouraged by the administration to share them openly.

Table 10: Level of OER readiness by factor if lecturers are the agents of OER creation

OER adoption factor	UCT	UFH	UNISA
Volition	▲	▼	◄►
Availability	▲	◄►	▲
Capacity	▲	▼	◄►
Awareness	▲	▼▼	◄►
Permission	▲▲	▼▼	▼▼
Access	▲▲	◄►	▲▲

Key: Level of OER readiness

very low	low	medium	high	very high
▼▼	▼	◄►	▲	▲▲

Secondly, despite the medium levels of awareness, capacity and volition at UNISA, the lecturers already possess teaching materials that are relatively highly “available” because they have all been through rigorous quality control processes run by their tuition committees. This gives lecturers a high degree of confidence in their materials for their own students, and for others outside the institution, if the materials were ever licensed and distributed openly.

OER readiness if institutions are agents of OER use

If we consider the institution as the agent of OER activity, a different picture emerges. For instance, what if we imagine universities as the agents of potential OER use? This is not a scenario that is discussed much above, and it is not a common activity at an institutional level, but certain HEIs globally are exploring this role (Liew, 2016; McGreal, Anderson & Conrad, 2016). However, at most universities, including those of this study, the responsibility for developing teaching materials rests with the lecturers themselves, though their decisions may be informed by institutionally mandated curriculum guidelines and committee decisions. For the most part, when talking about OER use, it is the lecturers who are the real and potential agents of activity, not the institution (hence we have not visualised this graphically as a relevant possibility).

It is, however, not inconceivable that the institution would want to make direct decisions about the teaching materials that are used in their classes, and they could conceivably demand that OER is used by lecturers. UNISA's OER strategy does encourage this, but it has not been operationalised as yet.

OER readiness if institutions are agents of OER creation

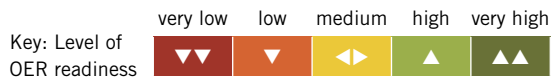
While institutions are rarely the agents of OER use, they can certainly be agents of OER creation due to the fact that many of them hold copyright over their lecturers' teaching materials. This means that, if they so desire, they can license this content openly and share it publicly. Table 11 shows the three universities' levels of OER readiness when the institution is viewed as the agent of potential OER creation.

The key insights here are that UFH and UNISA both have permission, through their IP policies, to share their lecturers' teaching materials. The institutions hold copyright over

these materials, so they would be free to license that content openly. By contrast, UCT has chosen not to retain copyright over such teaching materials, rather assigning it to the individual lecturers who created it (except in the case of Massive Open Online Courses; see Czerniewicz et al., 2015). While the university holds a “perpetual, royalty-free, nonexclusive licence to use, copy and adapt such materials within UCT for the purposes of teaching and or research” (UCT, 2011, p.15), this does not allow it to share or distribute these materials beyond UCT, where the activity of open licensing pertains.

Table 11: Level of OER readiness by factor if the institution is the agent of OER creation

OER adoption factor	UCT	UFH	UNISA
Volition	▼▼	▼▼	▲▲
Availability	▼	◀▶	▲
Capacity	▲	▼	▲
Awareness	▲	▼▼	▲
Permission	▼▼	▲▲	▲▲
Access	▲▲	◀▶	▲▲



In addition, the volition these institutions possess for creating OER is quite different in each case. UCT has not demonstrated any interest as an institutional entity in creating OER itself, and leaves this to individual lecturers to pursue. UFH has yet to show any interest in doing so, though it could do so in the future. UNISA has, however, revealed in multiple ways that it is very interested in using its copyright-holder status to create OER.

In sum, these OER readiness tables provide a quick, useful visualisation of the otherwise complex details that make up each institution’s OER adoption pyramid profiles. In examining the three tables, we can quickly grasp where the obstacles and opportunities lie for OER use and creation between lecturers and the institutions. They also remind us that OER researchers must be mindful of who the potential agent of OER activity is when assessing OER readiness in institutional contexts.

Institutional culture and OER adoption

When we started this research, we wondered whether different cultural configurations might have an impact on OER adoption. Since we believed that there were relatively low levels of OER adoption amongst lecturers in the country, we thought this might be explained by some large-scale force, such as cultural influence. Knowing that different universities are typified by differing institutional cultures made this question seem all the more pertinent. Thus one of our research questions was: How does an institution’s culture shape lecturers’ adoption of OER?

To answer this, we employed the notion of institutional culture as a broad descriptive term to differentiate between complex institutional entities that are constituted by their dynamic

interplay between structural (policy, etc.), social (collegial norms, etc.) and agential (level of individual autonomy, etc.) elements. How these three variables combined at any institution helped us determine what kind of institutional culture predominated there. It allowed us to understand how these different institutional cultures shaped each university's relationship with the six OER adoption factors, suggesting potential approaches for them to deal with challenges associated with the factors.

However, as shown above, the three institutional culture types that we engaged – collegial at UCT, bureaucratic at UFH and managerial at UNISA – did not possess any inherent preference for or hostility towards OER adoption. Indeed, we found culture to be an agnostic element in OER activity, and free of any predictive value regarding such adoption. However, we did find that culture had a powerful influence on how OER decisions were handled at an institution, especially with regards to the factors of permission and volition. For instance, the decision whether lecturers are granted or denied copyright over teaching materials serves to reinforce or contradict the prevailing sense of lecturers' rights vis-à-vis the institutional culture.

Thus, at UCT with its collegial institutional culture – defined by decentralised power and high levels of individual autonomy – individual lecturers are empowered to act on their own volition regarding OER. This means that the spirit of the culture aligns with the IP policy, suggesting that there will be greater sustainability for an innovation such as OER because adoption activities have been located in the space where they have the highest likelihood of success: with individual lecturers themselves. In other words, there is a crucial connection between permission (who holds copyright) and volition (who wants to act on that permission). If they are not the same agent, this creates a challenge for sustained adoption practices.

At UFH, with its bureaucratic institutional culture – defined by a top-down power structure where policies are inconsistently implemented and thus largely unsuccessful (from the lecturers' perspective) in terms of contributing to a coherent strategy – lecturers do not know whether or how they might proceed with OER adoption. They themselves do not have permission to create and share OER, but the institution (the copyright holder of their materials) has no ambition to share them as OER. This is due, in part, to the fact that few lecturers or administrators have much awareness of OER. Thus, this contradiction – of an institution (the agent) holding copyright (permission) over a vast collection of educational materials without any ambition (volition) to leverage them – remains a secondary concern to that of the simple fact that not enough people at UFH are aware of OER. If that changes, then the contradiction could be reviewed from a fresh perspective and the two parties – lecturers and management – could discuss a way forward. Nevertheless, while lack of awareness is currently the primary obstacle to OER adoption, the bureaucratic institutional culture raises general concerns about the relationship between permission and volition.

At UNISA, with its managerial institutional culture – defined by a top-down power structure that governs through tightly defined and implemented policy instruments – the management has both the permission and volition to engage in OER adoption activity. Thus, while lecturers may use OER in their course materials, they will not be responsible for turning them into OER. The institution will have to take responsibility for that, though it will likely harness the intellectual and labour resources present in the lecturers to

ensure that the OER produced conform to the standards set by management. This means that, while lecturers are relieved of the opportunity to create OER themselves, they may still end up participating in a broader OER creation process. From an OER adoption perspective, this alignment promises the highest likelihood of success in a managerial institutional culture.

Why South African lecturers adopt – or do not adopt – OER

While the previous insights emerged as a result of our effort to answer a series of research questions surrounding lecturers' engagement with OER, our primary research question was: Why do South African lecturers adopt – or not adopt – OER?

To answer this, we have to deconstruct the question into its constituent parts because adoption in this study context refers to both use and creation. It will be clearer if we treat each separately, differentiating between those who have used OER versus those who have not, and those who have created versus those who have not.

a) Why do some South African lecturers use OER?

While the majority of our respondents had never purposefully sought out OER to use in their teaching, those who had did so for the following reasons (listed according to the level of personal control that they had over these factors and/or variables, moving from greater to lesser control):

- Personal values: using OER was consistent with their educational philosophies, such as the belief that all education should be free.
- Pedagogical utility: there was educational value in using OER because it provided students with additional resources to consult and multiple perspectives through which to engage an issue.
- Social norms: the use of OER was part of the departmental ethos, where colleagues discussed, shared and used OER as a matter of common practice.

In addition, some of these lecturers mentioned that the materials were free of charge and the convenience of accessing them openly online as reasons why they were drawn to them. (These variables may influence OER use, but they fall outside the list of “essential” factors that determine *whether* lecturers can use OER or not.)

b) Why do some South African lecturers not use OER?

While the majority of respondents had never purposefully sought out OER, some had found them inadvertently (usually by accessing Wikipedia or YouTube prior to having any awareness of OER as a concept). Also, while all of the respondents had permission to use OER in their teaching, the primary reason why they had not used OER was simply lack of awareness: many had never heard of it, or, if they had heard of it, did not understand what it meant.

This means that most lecturers who have not yet used OER have not *chosen* not to do so, but have rather lacked the knowledge necessary to make an informed decision about it. However, those who were aware of OER cited a number of reasons why they had yet to use such materials:

- Lack of interest: it was mentioned only by one lecturer who did not believe in the Open movement, but a sentiment likely shared by many who remain sceptical of OER.
- Pedagogical challenges: it is hard to incorporate OER into a highly interactive teaching style.
- Social norms: departmental curriculum development relies more on going through old notes and current research publications than consulting teaching resources from outside the university.
- Lack of relevance: this is a concern about resources being relevant for the African context.
- Lack of institutional support: some did not know who to contact for help.
- Lack of capacity: many did not know where to find OER, or were intimidated by the sheer number of OER to sift through.
- Lack of legal clarity: some were not sure what the institutional policy on OER use was (though this could likely have been quickly remedied through some investigation).
- Copyright concerns: a number worried about inadvertently infringing others' copyright because they did not understand the implications of various licences.

Additionally, these lecturers mentioned that “lack of time” was a big obstacle to their use of OER, though we interpreted this to mean “a lack of personal priority” (and thus comprising a subjective statement about time, not an objective one).

c) Why do some South African lecturers create OER?

Only a few respondents had actually created OER, but their reasons for doing so ranged from altruism to self-promotion to a variety of other reasons:

- Personal values: creating OER was consistent with their educational philosophies, such as the belief that all education should be free.
- Personal visibility-raising opportunities: OER sharing allowed lecturers to stake a claim to a field, demonstrating their current academic approach.
- Networking and crowdsourcing opportunities: allowed lecturers to connect with others, especially those whose work they were incorporating into their own OER.
- Pedagogical utility: it helped improve the quality of their materials because they anticipated the resources would come under heavier scrutiny than experienced in their own course settings.
- Social norms: the creation of OER was part of the departmental ethos, where colleagues discussed, used and created OER as a matter of common practice.
- Institutional incentives: financial grants were available for turning closed materials into open resources.

d) Why do some South African lecturers not create OER?

The majority of respondents had never created OER. The primary reasons why they had never created OER were due to:

- Lack of awareness: many had never heard of it, or, if they had heard of it, they did not understand what it meant.
- Lack of permission: no lecturers at UNISA or UFH have permission to share their teaching materials as OER because the university holds copyright over those materials.

This means that most non-creators have not *chosen not* to create OER, but rather that they lack the legal permission and awareness of the concept necessary to make such a decision. However, those (at UCT) who did have permission and were aware of OER cited a number of reasons why they had yet to create them:

- Lack of motivation: it is not a high priority, thus no action.
- Protective and possessive: difficult to just give away one's work.
- Lack of confidence: they expressed personal fears of embarrassment and exposure.
- Fear of misuse: they worried that others may misuse the materials.
- Pedagogical challenges: some believed that a highly interactive teaching style would be challenging to reproduce through materials that would be shared openly.
- Social ethos: their departmental norms were a key reason for not creating OER.
- Loss of revenue: disrupts potential revenue stream from copyrighted materials for lecturers.
- Materials not ready: some materials were seen as provisional, in need of testing and refinement through classroom interactions before sharing.
- Lack of legal knowledge: there were concerns about copyright and licensing.
- Lack of familiarity: they were unaware of where to find open platforms for uploading materials.

They also mentioned “lack of time”, suggesting that OER creation would be a competing priority amongst many others, and that it was not yet a priority for them.

However, even with the reasons articulated here, most UCT non-creators did not see themselves as actively “choosing” not to create OER. While they did indeed have permission to create OER and were aware of the concept at some basic level, the fact that they worked in departmental or disciplinary contexts where the creation of OER was uncommon meant that they were never confronted, in any meaningful sense, with the need to make some sort of decision about whether they would create OER or not. They acknowledged that they had such a choice (at an abstract level), but the social norms and activities that defined their working environment never raised the issue of OER creation to a level that required a deliberate, conscious decision. Such an overt decision would most likely occur in a context where OER creation was the norm, where there was social pressure to do the same, and where one would have to justify non-action. Thus, it is worth keeping in mind that, for many non-creators, inactivity may result as much from OER creation being a passive “non-issue” as it does from them being hindered by various obstacles or not having the requisite volition.

In addition to the reasons given above for non-creation, lecturers at UFH and UNISA (who lack permission to contribute) suggested a few other reasons why they, or their colleagues, would not create OER, even if they had permission:

- Lack of interest: some were unpersuaded by the values of the Open movement and saw no pedagogical advantages to OER over traditional materials.
- Concern over misuse: they worried that users would misinterpret materials.
- Concern over attribution: they were concerned that authors of OER would not be properly acknowledged.
- Lack of necessity: because a number of high-powered academics have already contributed OER in their direct fields of study, further contribution feels redundant.
- Lack of incentive: institutions do not recognise OER creation in academic performance assessment for promotion purposes.
- Lack of support: sometimes there is no site of institutional support for OER creation.
- Lack of capacity: they needed more technical skills and open licensing knowledge.
- Lack of access: there was unstable internet and electricity for staff members on campus, but especially for students off campus.

In sum, we can see an important pattern emerge when it comes to OER volition when considering why lecturers use or create OER. Once all of the factors are in place for positive action, lecturers who adopt OER do so for moral, pedagogical, social, practical and self-promotional reasons. Sometimes one of these reasons is enough, but adopters usually embrace more than one. Some of these coincide with the moral, pedagogical and financial claims made by the Open movement concerning the value and utility of OER. However, as noted, the virtue of these claims has yet to be acted on by most of the adopters' colleagues.

Additionally, the question of OER volition must extend to the institutional management if it holds copyright over lecturers' teaching materials. Considering that this characterises the situation at most South African universities, it would be useful to understand more about managers' motivations (on which we can only speculate here).

Conclusion

This research project originally started with an ambition of understanding whether cultural and social contexts influenced lecturers' motivation to adopt OER at South African universities. This perspective was informed by a sense of how OER decision-making takes place in our own institutional context where individual lecturers have a great deal of freedom and autonomy in using and/or sharing OER. However, by investigating the phenomena at two South African universities besides our home institution, we learned that the cultural and social contexts were among the last issues lecturers dealt with in their OER decision-making processes. A number of other factors exerted a powerful influence on their deliberations before these cultural and social issues could even be considered, suggesting that there is perhaps a layered sequence of externally-to-internally determined factors shaping OER

adoption, of which the cultural and social issues were relatively marginal. This realisation revealed a variety of crucial insights.

First, our research at three different types of HEIs revealed that the *factors influencing OER engagement* should not be understood as serial, equivocal factors, but as sequentially related factors which must all meet a certain minimum threshold at the same time for an institution to be considered “OER ready”. If any of these factors – access, permission, awareness, capacity, availability or volition – fall below a critical minimum of operational acceptability, it will probably influence OER decision-making and activity at the institution.

Second, due to the different approaches to IP at the three study sites, we learned that, when it comes to OER decision-making, both lecturers and institutions may be the appropriate *units of agential analysis*. While lecturers at UCT are the agents of potential action for both OER use and creation, at UFH and UNISA the lecturers are the agents for potential OER use, while the institutions are the agents of potential OER creation. This distinction has profound implications for the kinds of strategies that might be advocated for greater OER activity in these differing contexts.

Third, the type of *institutional culture* that exists at a university will have a powerful impact on the types of options institutions have for engaging with OER. Even though institutional culture is not a readiness “factor” in the sense that access or awareness is (because OER activity can proceed under any type of institutional culture), it provides insight into the type of opportunities that exist for promoting OER activity. Thus, in a collegial context, it may be best to promote individual lecturers’ agency because this coincides with the broader values of the institution. In a bureaucratic institutional culture, it may be best to grant individuals the freedom to act as agents on their own, but as members of departments and units where adoption is institutionally supported, so that a critical mass of adopters can cue broader adoption behaviour. Finally, in a managerial context, it may be best to involve high-level management in establishing guidelines and directives for activities, as this might encourage cohesion and buy-in from the primary agents of strategic action who can ensure its future sustainability.

Fourth, the *social contexts* shaping OER adoption are varied for lecturers, depending on the type of institutional culture that manifests at their universities, as well as the departmental and disciplinary norms that inform their work. While it is generally true that a positive OER environment will encourage individual activity, it does not determine that this will necessarily take place. Likewise, many individuals adopt OER in social isolation, departing from the pedagogical norms that abide in their departments or disciplines. Thus the social context is potentially an influential element of individual volition, but not necessarily a determining factor as to whether OER adoption will take place or not.

Lastly, we have learned that the “openness” of an OER is rarely more important than the practical, pedagogical concerns surrounding any educational materials’ relevance and quality in terms of a specific intended use. While the ethic behind this openness may correspond with a potential user’s personal educational values, it does not override the necessity that the materials meet other subjective standards of relevance, utility and quality. In this respect, for many educators OER do not comprise a special class of educational materials which are exempt from scrutiny due to their open status. Rather, like any traditional educational resource that is being considered for use, they exist in a competitive

space populated by a myriad of open and closed materials which are assessed and selected according to primarily pedagogical criteria (relevance, utility and quality).

Similar thinking applies to lecturers' evaluation of their own teaching materials in terms of potentially making them open, but in this regard lecturers are typically guided by two key principles: they believe in an open educational ethic, and they find that there is pedagogical utility in going through the process of making materials open (especially in anticipating greater scrutiny, and therefore improving the quality of their work). Their motivation to create OER may also be supported by sharing a positive social environment with their colleagues, helpful institutional incentives (such as financial grants to create OER), the opportunity to network through sharing, and the chance to boost their own professional profile through sharing teaching materials.

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