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Open Praxis welcomes contributions which demonstrate creative and innovative research, and which highlight challenges, lessons and achievements in the practice of distance and e-learning from all over the world.

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ICDE—International Council for Open and Distance Education
Lilleakerveien 23
0283 Oslo, Norway
editor@openpraxis.org
www.openpraxis.org
http://dx.doi.org/10.5944/openpraxis
ISSN 2304-070X

Journal history


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Open Education. Introduction to selected papers

Inés Gil-Jaurena

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Following a collaboration that led to the publication of special issues in 2014 (vol. 6 issue 2), 2015 (vol. 7 issue 2) and 2016 (vol. 8 issue 2) for a fourth consecutive year Open Praxis has partnered with the Open Education Consortium for the publication of selected papers among those presented in the 2017 Open Education Global Conference (Cape Town, South Africa, 8-10 March, 2017).

As stated in the conference website (http://conference.oecconsortium.org/2017/about-oe-global-2017),

The Open Education Global Conference is where the world meets to discuss, plan, reflect, collaborate, innovate and celebrate openness in education.

We’re particularly excited to have Cape Town as the venue in 2017 conference, since it marks the 10 year anniversary of the Cape Town Open Education Declaration. 2017 actually marks several important milestones in Open Education, including the 15 year anniversary of the term “Open Educational Resources” and the 5 year anniversary of the Paris OER Declaration. (…) we’ll have the opportunity to celebrate and reflect on these and other achievements (…).

Papers submitted for publication in Open Praxis have followed a separate review process. The Open Education Global Conference 2017 Programme Committee first reviewed submissions for inclusion in the conference. Those accepted for presentation and best rated by the committee, among the 89 submissions that stated an interest in the publication opportunity in Open Praxis, were then recommended to Open Praxis for peer review and possible inclusion in this issue. 12 contributions were preselected and invited to submit the full paper; 9 did so. These papers followed the usual submission guidelines in Open Praxis (i.e. double-blind peer review by two reviewers); additional revisions were requested during the peer review process, and finally 7 papers were accepted for publication.

The selected contributions cover various topics in relation to Open Education:

- The first three papers present conceptual approaches to the adoption of open education.
- The next two papers address survey-based studies in specific contexts (Kenya and Japan) with regards to the use of OER.
- The last two papers focus on postgraduate students’ experiences and perspectives in relation to MOOCs and OER.

Michael Paskevicius, from the University of Victoria in Canada (Conceptualizing Open Educational Practices through the Lens of Constructive Alignment), undertakes a literature review to present a model for instructional design that considers and promotes open educational practices. This framework is of interest to anyone involved in higher education that wants to understand and put open education into practice.

Also from a conceptual perspective, Rajiv Sunil Jhangiani, from Kwantlen Polytechnic University in Canada (Pragmatism vs. Idealism and the Identity Crisis of OER Advocacy), analyses the tensions faced by the open education movement, including the one between OER and OEP. He proposes an integrated approach that values diversity within the OER advocacy and identifies different types and stages in the adoption of open education. This lens can help to raise self-awareness within the open education movement and thus be critical with regards to the next steps in the advocacy commitment.

DOI: https://doi.org/10.5944/openpraxis.9.2.657
Dealing also with the adoption of OER, Glenda Cox and Henry Trotter, from the University of Cape Town in South Africa (An OER framework, heuristic and lens: Tools for understanding lecturers’ adoption of OER), explore three analytical tools they have used when researching the use and/or creation of OER in three universities in South Africa. With a special focus on the institutional cultures and readiness, the framework they suggest is valuable for other researchers and institutions willing to adopt OER.

Judith Pete, from Tangaza University College in Kenya, Fred Mulder, from Open Universiteit in The Netherlands, and Jose Dutra Oliveira Neto, from the University of Sao Paulo in Brazil (Differentiation in Access to, and the Use and Sharing of (Open) Educational Resources among Students and Lecturers at Kenyan Universities), present a study developed also in the ROER4D project that details the state of the art around OER in Kenya. Through questionnaires to lecturers and students, they explore quantitative descriptive data and provide an overview of the use, perceptions and intentions about OER in that context. They conclude with a set of recommendations derived from the study.

In a different context, Katsusuke Shigeta, Mitsuyo Koizumi, Hiroyuki Sakai, Yasuhiro Tsuji, Rieko Inaba and Naoshi Hiraoka, from various higher education institutions in Japan (A survey of the awareness, offering, and adoption of OERs and MOOCs in Japan), provide an overview of the situation in their country, as a follow up of another previous survey-based study. Their detailed report covers universities and colleges all over Japan and explores awareness, use and intention about OER and MOOCs, highlighting some significant findings when comparing perception about MOOCs between institutions that provide them and those that don’t.

Tasneem Jaffer, Shanali Govender and Cheryl Brown, from the University of Cape Town in South Africa (“The best part was the contact!”: Understanding postgraduate students’ experiences of wrapped MOOCs), use the Community of Inquiry framework to analyse a blended learning space that combined MOOCs about soft skills and a local face-to-face group with postgraduate students. The characteristics of the programme –supplemental and voluntary– made them incorporate a ‘learner presence’ category to the CoI framework and consider structural factors, as well.

Finally in this section that presents selected papers from the Open Education Global Conference, Thomas William King, also from the University of Cape Town in South Africa (Postgraduate students as OER capacitators), explores a project developed in his university where students were involved in adapting lecturer’s materials and transforming them into OER. The successful experience is clearly described so the different steps, challenges and findings can be useful for other programmes.

This Open Praxis issue also includes three innovative practice papers.

Juan García-Gutierrez and Marta Ruiz-Corbella, from UNED, and Araceli del Pozo Armentia, from Universidad Complutense in Spain (Developing Civic Engagement in Distance Higher Education: A Case Study of Virtual Service-Learning (vSL) Programme in Spain), present a service-learning experience developed in virtual mode involving students from UNED and from a university in Benin. The authors introduce this new modality of practical learning with a civic commitment and report on this specific experience, highlighting the success and the challenges faced, as well as the potential of this type of programmes in distance education institutions, and claiming for its promotion.

Carmel Haggerty, from Whitireia Community Polytechnic & Wellington Institute of Technology, and Trish Thompson, from Ara Institute of Canterbury in New Zealand (The challenges of incorporating ePortfolio into an undergraduate nursing programme), report on a experience with the Mahara platform. A group of tutors and students used this ePortfolio, and the paper explains the process, results and difficulties encountered in the progressive introduction of this electronic tool in a context –nursing programme– where paper-based portfolio is more commonly used.

Finally, José António Moreira, Susana Henriques, Maria de Fátima Goulão and Daniela Barros, from Universidade Aberta in Portugal (Digital Learning in Higher Education: A Training Course
for Teaching Online - Universidade Aberta, Portugal), discuss the progress of an online course addressed to professors who work at higher education institutions in Portugal and in other Portuguese speaking countries. They describe the course and the innovations they have incorporated, such as e-portfolios, interaction and collaboration, providing an example that could be of interest for other higher education institutions concerned with professional development.

We wish Open Praxis readers an enjoyable and critical reading of this issue, which aims to contribute to the ongoing debate about open education.

We specially thank from Open Praxis to the authors and the reviewers for their valuable contributions, and to the Open Education Consortium for the partnership and collaboration in the preparation of this special issue.
Conceptualizing Open Educational Practices through the Lens of Constructive Alignment

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Abstract
The act of instruction may be conceptualized as consisting of four elements: learning outcomes, learning resources, teaching and learning activities, and assessments and evaluation. For instructors in higher education, the way they manage the relationships between these elements is what could be considered the core of their instructional practice. For each of the elements, this paper seeks to identify open educational practices, their affordances, and evidence of their utility in supporting the work of teachers in shifting from existing teaching and learning practices to more open educational practices. The literature reviewed and model proposed may provide educational developers or proponents of open education a lens with which to discuss open educational practices with faculty specifically related to their teaching and learning design practices.

Keywords: open educational practices (OEP); constructive alignment; open educational resources; educational development; innovation in teaching and learning; Creative Commons

Introduction
Higher education institutions are situated in an increasingly open technological, social, and legal landscape. Various movements are developing which signify those changes, including the emergence of open educational resources (OER), massive open online courses (MOOCs), alternative schooling and training opportunities, and a desire for increased personalization of educational experiences. This paper explores the emergence of this open ecology in higher education and the impact on teaching and learning practices. Specifically, this paper explores how the availability and affordances of open education may impact the pedagogical choices and designs of faculty who teach in higher education.

Digital technologies have been characterized as protean, unstable, and opaque: protean, in that they can be used in a variety of possible ways (Papert, 1993); unstable, in that they are changing and evolving rapidly over time; and opaque in that their potential applications and inner workings are not always made explicit (Turkle, 1997). Unlike traditional teaching technologies which have more evident uses such as a pencil, which is used for writing, or a microscope, which is for viewing small objects, digital technologies can be applied in a number of different ways in an educational context (Koehler & Mishra, 2009). The affordances, or ways of using, digital technologies present opportunities for innovative usage in education but also remain a challenge to apply effectively.

One affordance of digital technologies is widely recognized; they enable the creation of digital resources which can be copied and shared with little cost or effort. The internet now provides a global network facilitating search and access to online resources. In the context of higher education, the recent emergence of open access to teaching and learning material including educational content, learning designs, and learning activities provides a valuable resource for faculty, students, and self-learners as well as an opportunity to move towards a more participatory culture (Brown & Adler, 2008; Ehlers & Conole, 2010). Further, open licensing models support the legal copying, adaptation, and re-sharing of digital educational materials.
Several higher education institutions around the world have leveraged these technologies to support teaching and learning (Smith & Casserly, 2006; Hodgkinson-Williams & Gray, 2009; Murphy, 2013). This is a significant shift away from a time when educational content was mostly only available to individuals enrolled in formal education. Institutionally, the impetus to share materials in this way may be driven by a marketing objective with an agenda to raise institutional profiles (Dos Santos, 2008); altruistic motivations to provide access to knowledge (Hylén & Schuller, 2007); or to invite innovation networks and collaboration across institutions (Carey, Davis, Ferreras, & Porter, 2015). Open educational practices (OEP) are those teaching and learning practices enabled and supported by the open movement, either in making use of OER, engaging students in openness, or making professional practice more accessible.

The goal for this paper is to explore the literature on open education, specifically considering and scrutinizing the impact on the teaching and learning practices of faculty in higher education. Scholars have suggested a move to openness in higher education may provide an impetus for innovative teaching and learning processes, resulting in new conceptualizations of teaching and learning roles and practices (Lane & McAndrew, 2010; Porter, 2013; Littlejohn & Hood, 2016). In this way, open education may be a catalyst for innovation in the practice of teaching in higher education. However, these practices must be supported by both an understanding of the affordances of the tools which support open, emerging technological literacies and competencies (A. Lane, 2009), as well as pedagogical knowledge (Bates, 2011). Additionally, engaging students with openness can advance the competences, knowledge, and skills needed to participate successfully within the political, economic, social, and cultural realms of a more open society (Geser, 2007; McAndrew, Scanlon & Clow, 2010). For those faculty taking on OEP as part of their teaching, a greater understanding of the issues, challenges, and necessary supports is needed to further develop OEP (Beetham, Falconer, McGill & Littlejohn, 2012; Borthwick & Gallagher-Brett, 2014; Camilleri, Ehlers & Pawlowski, 2014; Pitt, 2015; Littlejohn & Hood, 2016).

Defining Open Education Practice

While some literature has suggested OEP are simply those which make use of OER, one of the founding documents on open education suggests a broader vision. The Cape Town Open Education Declaration suggests,

“open education is not limited to just open educational resources. It also draws upon open technologies that facilitate collaborative, flexible learning and the open sharing of teaching practices that empower educators to benefit from the best ideas of their colleagues. It may also grow to include new approaches to assessment, accreditation and collaborative learning” (The Cape Town Open Education Declaration, 2007, para. 4).

More recently scholars have argued that research on OER should focus less on access to digital content, and more so on the impact of openness in supporting innovative educational practices (OPAL, 2011; Kimmons, 2016). By exploring a broader notion of openness in education, we shift the focus from content (OER) to the practices (OEP) that are necessary for the use of that content (Deimann & Farrow, 2013). The shifting focus of discourses from OER towards OEP represents a positive advancement of the field, as this represents a change from developing and releasing OER content to researching their impact (Weller, de los Arcos, Farrow, Pitt & McAndrew, 2015). As found with the costly learning object repository movement, educational technology initiatives should support and report on practices and processes rather than products alone (Friesen, 2009).
Open pedagogy, open educational practices, or open practices, often used interchangeably, have been defined as “the next phase in OER development, which will see a shift from a focus on resources to a focus on OEP being a combination of open resources use and open learning architectures to transform learning” (Camilleri & Ehlers, 2011, p. 6). Several definitions of OEP have been proposed in the literature. Wiley (2014) proposed the 5R model to describe the affordances, practices, and possibilities of working with OER which form a framework for practice. OEP have also been defined as teaching and learning activities where both “resources are shared by making them openly available and pedagogical practices are employed which rely on social interaction, knowledge creation, peer learning and shared learning practices” (Ehlers, 2013, p. 94). Stagg (2014) contributes a continuum model for OEP which ranges from awareness and access of OER, sharing of one’s own works as OER, passive remixing of OER, active remixing of OER, and finally student engagement in the creation of OER. Hegarty (2015) proposes eight attributes which describe the strategies and policies which encompass OEP. These attributes are broadly focused providing guidance on the qualities of OEP while not making specific recommendations for practice. Nascimbeni & Burgos (2016) propose a definition which advances towards defining the specific scholarly practices associated with OEP. This definition identifies activities such as course design, content creation, pedagogy, and assessment design as areas for infusing OEP.

Based on these attempts to articulate OEP and a desire to have a definition which more specifically addresses how faculty might make the shift from existing practices to open practices, a working definition in the context of this research is proposed.

_Teaching and learning practices where openness is enacted within all aspects of instructional practice; including the design of learning outcomes, the selection of teaching resources, and the planning of activities and assessment. OEP engage both faculty and students with the use and creation of OER, draw attention to the potential afforded by open licences, facilitate open peer-review, and support participatory student-directed projects._

This definition is purposefully intended to align with the model of constructive alignment (Biggs, 1996) and provide logical pathways for faculty considering enacting OEP in their teaching and learning practices. Previous research suggests there is a need to understand the potential of OEP to change educators’ practice around learning design (Harrison & DeVries, 2016). Others have suggested the need for concrete strategies which empower faculty to integrate open teaching and learning practices (Nascimbeni & Burgos, 2016). The proposed approach provides faculty with ways to think about building openness into the design of learning outcomes, selection of resources, planning of teaching activities, and design of assessment.

**Method**

The literature review that follows presents research on how emergent OEP are impacting teaching and learning practices. These practices are described in terms of their affordances and evidence of their utility in supporting educators shifting from existing to open practices. A combination of methods was used to conduct this narrative literature review. Web of Science was initially used to source literature in relation to the search terms ‘open educational practice’, ‘open education practice’, ‘open practice’, or ‘open pedagogy’. A similar query was run using Harzing’s _Publish or Perish_ software which retrieves and analyzes Google Scholar citation data. Research databases and Google Scholar were used to scan for additional literature. Citation tracing methods were further used to locate research cited within the works reviewed. The corpus of literature was then narrowed to include only empirical research which focused specifically on OEP in relation to instructional practice.
The Atomic Structure of Instructional Practice

A model of instructional practice will be used to frame the analysis of the literature on OEP within the context of teaching and learning. This approach situates OEP within existing instructional practice, rather than taking the common optimistic view that openness alone is transformative and requires entirely novel pedagogical approaches (Masterman & Chan, 2015). Biggs’ (1996) model of constructive alignment provides a framework to guide impactful instructional design and practice. The model suggests an ideal synergy between the intended learning outcomes, teaching and learning activities which meet those outcomes, and assessment and evaluation which demonstrate the achievement of the outcomes. Inherent in the model is the notion that students create and construct meaning by engaging in learning activities, rather than having it transmitted to them by faculty (Biggs, 2003). Supporting this process are the knowledge resources which faculty select to support the development of strong outcomes, provide sources for teaching and learning activities, or sources for assessment and evaluation. When the elements of instructional practice are well aligned, studies have shown that students are more likely to adopt approaches to learning which result in meaningful learning (Wang, Su, Cheung, Wong & Kwong, 2013). Thus, students have a clear understanding of the outcomes, see their relation to teaching and learning activities, and are better able to plan for and achieve success during assessment (Beetham et al., 2012).

The framework of constructive alignment provides a lens for conceptualizing the integration of OEP in a deliberate way. Previous studies have shown that faculty tend to pick and choose aspects of OEP which fit their existing pedagogical approaches (Beetham et al., 2012) or apply a “bolt-on” approach to design which foregrounds the addition of technology over the consideration of how that integration contributes to meaningful pedagogy (Lyons, Hannon & Macken, 2014). Considering OEP within a framework which supports pedagogically sound instructional design practices makes it more straightforward to identify specific, relevant, roles for integrating OER and enacting OEP (Masterman, 2016). An analysis of the literature on OEP follows considering these four core elements of constructive alignment.

Open Practices for the Design of Learning Outcomes

According to Biggs, “teachers need to be clear about what they want their students to learn, and how they would manifest that learning in terms of ‘performances of understanding’” (Biggs, 1996, p. 360). Learning outcomes provide a description of the intended knowledge, attributes, and skills of a successful student. Ensuring strongly written learning outcomes are made explicit and openly accessible to students, thereby helping them to understand what is needed for success, may be a simple way to enact OEP. While this may seem a logical activity some scholars have suggested that the deliberate articulation of aligned learning outcomes are often not fully considered or communicated (Blumberg, 2009).

Learning outcomes may further be made openly accessible as OER, so that students have a better sense of the goals of a course prior to enrolling. Increasing the transparency and accessibility of the curriculum also has benefits at the departmental and program level, potentially creating greater alignment of courses within an academic program (Lam & Tsui, 2016). The process of sharing and aligning course and program learning outcomes among faculty has also been shown to positively impact collaboration and collegiality (Uchiyama & Radin, 2009; Petrides, Jimes, Middleton-Detzner, Walling & Weiss, 2011).

Ehlers (2011) articulated a spectrum of open and flexible practices which relate strongly to the design of more open student learning outcomes. Low degrees of openness are reflected in learning outcomes where transmission and reproduction of knowledge is the intended goal. Medium degrees
of openness might be said to exist when learning outcomes are predetermined, but the pedagogy is flexible and students are actively involved in collective dialogue. High degrees of openness would involve co-creation of the learning outcomes, objectives, and methods by students. Moving towards the high end of the spectrum for designing learning outcomes allows for greater personalization, autonomy, and self-regulation on the part of students (Ehlers, 2011). The research of Hipkins (2012) and Reeve, Jang, Carrell, Jeon and Barch (2004) further support the involvement of students in contributing to the formation of learning outcomes, which were found to support personalization, autonomy, and increased student engagement. The move towards more open learning outcomes further shifts the role of the faculty member from transmitter of knowledge to facilitator of learning.

While learning outcomes have not been largely ascribed as OER, it has been argued that they represent educational artefacts worth sharing, improving, and reusing (Ehlers, 2011). De los Arcos, Farrow, Perryman, Pitt and Weller (2014) found that OER that included associated learning outcomes were more likely to be used by self-directed learners and educators seeking resources for their own practice. Conole (2013) further suggests the use and sharing of visualizations such as ‘learning outcome maps’ which explicitly link intended learning outcomes, activities, resources, and assessment in a visual way. Providing access to these visualized learning designs ensure students know how to be successful and helps expose the instructional design and representative pedagogy to other educators (Conole & Culver, 2010).

Open Practices for the Design of Learning Resources

The selection, adaptation, and creation of learning resources support most aspects of instructional practice. Despite the increased availability of openly licensed resources now available, commercially developed resources are still dominant in higher education (Allen & Seaman, 2016). Commercially developed educational resources limit possibilities for teaching and learning due to their physical and digital affordances in combination with most copyright laws around the world. Where a digital copy of a textbook is available from a publisher, it is often locked into a proprietary format with digital rights protection (DRM), which provides access for a limited timeframe, and under restrictive copyright (Wiley, 2014). This significantly limits what both faculty and students can do with their learning resources.

In contrast OER offer significant financial, legal, and technical freedoms. Several empirical studies have been conducted to assess educators’ engagement and use of OER. These studies show that while awareness of OER is increasing, adoption, usage, and contributions by faculty remain low (de los Arcos et al., 2014; Allen & Seaman, 2016; Jhangiani, Pitt, Hendricks, Key & Lalonde, 2016). Faculty widely recognize the cost savings for students in assigning OER and evidence of increased student performance and satisfaction are emerging (Pitt, 2015; Weller et al., 2015). Further empirical research suggests that, in comparison to the use of traditional texts, the usage of OER does not adversely impact existing learning outcomes (Robinson, Fischer, Wiley & Hilton, 2014; Fischer, Hilton, Robinson & Wiley, 2015; Jhangiani et al., 2016). Faculty cite the challenges of locating relevant, high quality, and topical resources in their subject area as a significant barrier to more actively using OER (de los Arcos et al., 2014; Allen & Seaman, 2016).

Despite the challenges cited there is a vast quantity of OER now available on the internet. Resources, many of which could be considered educational, licensed with Creative Commons have surpassed a billion, tripling in volume over the last five years. Creative Commons speculates that over 76,000 of those resources are OER; 1.4 million research papers; 46 million articles, stories, books, or documents; and over 400 million encompass other forms of media including audio, images, or video (Merkley, 2015). These resources may be compiled: into other educational resources; for developing
online learning materials (Beaven, 2013); as sources of inspiration (Borthwick & Gallagher-Brett, 2014; Weller et al., 2015); or for engaging students in creative projects (Tur, Urbina & Moreno, 2016). More theoretical research is needed on the time, effort, and literacies needed to conduct these activities as well as their impacts on pedagogy (Beetham et al., 2012; Jhangiani et al., 2016; Littlejohn & Hood, 2016).

Faculty’s adoption of OER also has a secondary impact on students, in that it may be their first exposure to open education, open licensing, and non-commercial sources of knowledge. Acknowledging and sharing the resources being collaboratively created through open education can have an impact on students’ own knowledge practices (Carey et al., 2015). Not only do these practices make the activities in higher education more relevant in modern society but they also foster the development of valuable literacies for students entering the workforce (Royle, Stager & Traxler, 2014).

Open Practices for the Design of Teaching and Learning Activities

The availability of OER has been frequently cited as a way for faculty to find inspiration for their own teaching and learning activities (Petrides et al., 2011; de los Arcos et al., 2014; Jhangiani et al., 2016; Kimmons, 2016). Further, this exposure to practice can create opportunities for the collaborative development of learning resources and designs (Masterman & Wild, 2011; Petrides et al., 2011).

Many faculty initially access OER to explore discipline specific pedagogical approaches and resources with the intent of enhancing their practice (de los Arcos et al., 2014; Weller et al., 2015; Jhangiani et al., 2016). By seeking teaching and learning activities which are more openly accessible, faculty may review strategies relevant in or beyond their discipline, discovering new ways to introduce concepts or design teaching and learning activities (Beaven, 2013). Petrides et al. (2011) reported that faculty were able to build upon and adapt OER to enhance their own courses. Faculty noted that OER provides ideas for teaching activities in the classroom and resources which can be used to design more interactive learning experiences (Petrides et al., 2011). Engagement with OER has also been found to stimulate critical reflection in faculty leading to the reconsideration of existing teaching and learning activities (Beetham et al., 2012; McGill, Falconer, Dempster, Littlejohn & Beetham, 2013).

Much like sourcing OER, faculty report that finding appropriate resources and integrating new activities in their curriculum is time consuming (Petrides et al., 2011). Furthermore, knowing where to find resources is still reported to be one of the biggest challenges to using OER (de los Arcos et al., 2014; Allen & Seaman, 2016). Professional development programs can be helpful in bringing faculty together to take time to share and explore practice (Borthwick & Gallagher-Brett, 2014; Kimmons, 2016). Further, promoting openness at the institutional level can support capacity building and collaboration on curriculum development within departments (Lyons et al., 2014; Karunanayaka, Naidu, Rajendra & Ratnayake, 2015).

Faculty may gradually gravitate towards more OEP as they engage further with the movement. Pitt (2015) reported that 25% of faculty who had engaged with OER reported changing their pedagogical approaches based on this exposure. Further research is needed to determine if engagement with OER leads to the development of OEP. Additionally, research is needed to determine whether adopting OEP alters the dominant model of teacher-centred education. It has been argued that many of the teaching and learning activities which still prevail involve an educator mediating an authoritative learning resource, requiring students to study and reproduce it (Geser, 2007; McAndrew et al., 2010).

Students’ perceptions of the move to greater OEP are also crucial to understand, as “teachers who use OER instead of lecturing risk being seen as ‘not real teachers’” (Ossiannilsson & Creelman, 2011, p. 376). Therefore, research is needed into both faculty’s move towards OEP and the subsequent impact on students. The pedagogical value of a move towards OEP is that it can provide space for and foster dialogue, co-creation, and participatory learning, deconstructing the teacher-student binary by increasing access and inviting participatory learning (Morris & Strommel, 2014). By adopting OEP in their teaching and learning activities, faculty may enable students to be further involved in the active creation and curation of knowledge during their learning.

Open Practices for Designing Assessment and Evaluation

Constructive alignment derives from a constructivist view of learning emphasising the “centrality of the learner’s activities in creating meaning” (Biggs, 1996, p. 347). OEP which impact assessment rely on the active participation and production of knowledge by students, shifting the role of student as consumer of knowledge to student as a producer of knowledge (Neary & Winn, 2009). In doing so students are tasked with greater autonomy and must take responsibility for their own learning (Ossiannilsson & Creelman, 2011). This may be interpreted as a risky venture for faculty concerned about students who are uncomfortable with less traditional teaching methods (Dohn, 2009; Ossiannilsson & Creelman, 2011; Gray et al., 2012). Conversely, it has been argued that OEP may be a way to bridge the formal/informal learning divide in higher education (Cronin, 2016).

While introducing students to OER and OEP, researchers have found that students generally hold positive attitudes around the possibilities these practices offer (Tur et al., 2016). Dohn (2009) surfaces several challenges related to student’s perceptions around knowledge, learning, and the goals of the practice implicit in more open forms of assessment. Engaging students in OEP requires a change of orientation around issues such as “authorship, copyright, knowledge production, and expertise […] enabled by the distributed authorship, the renouncement of copyright, and the acceptance of one’s text being edited and transformed by later coauthors” (Dohn, 2009, p. 344). Despite this, it is argued that more open assessment practices have benefits to the learner, including the practicing of digital literacies in the context of teaching and learning, active engagement in the production of knowledge, working within and integrating both formal and informal learning environments, and developing digital literacies and competencies relevant and needed in future workplaces (Dohn, 2009).

Downes (2010) argues that those benefiting most from OER are the people who are producing the resources. This argument is reinforced in Littlejohn & Hood’s (2016) study which investigates how individuals learn and construct knowledge through the creation, adaptation, and reusing of OER. In engaging with and sharing OER, individuals promote their own work, teaching, and research processes. Further, contributors to OER may engage with and form networks around the resources they create, collecting feedback and reviews to further improve their work. Following Downes’ argument, engaging students as contributors and creators of OER as part of assessment could lead to benefits for the student in terms of promoting their own creative work, forging connections, and building their own portfolio.

So much of the work students produce for assessment in higher education remains invisible to their peers, wider institution, local community, or the world. Students most often produce works which are submitted via closed learning management systems (LMS), then reviewed only by the faculty member who provides feedback and a grade. Naturally this is appropriate for many instances of assessment, for example sensitive reflections or early formative work. Moreover, students may find themselves uncomfortable sharing openly, so flexibility and sensitivities to this...
should be accommodated (Masterman & Wild, 2011). However, students may be provided with encouragement, opportunities, and literacies which empower them to share their work more widely if appropriate. In doing so we equip them with the literacies of purposeful searching, curation of their own works, understanding of open licenses, and ways of using OER in their professional lives (Masterman & Wild, 2011).

In some cases, it may be quite appropriate that resources created by students during the process of their learning should be accessed by future students. By doing so we enable students to build on the work of their peers. An example may be found with community outreach projects; providing students with access to the work previously done in the community fosters the collective and collaborative advancement of a community outreach project. Making student contributions openly available “is seen by educators as an important factor for improving teaching and learning and for creating more open and participatory cultures” (Alevizou, 2012, p. 11). Student work shared openly invites review, comment, refinement, network formation, and potential opportunities for collaboration. “When work is done privately – when it is carefully hidden from the public – no synergy is possible. When the individual nodes remain disconnected, no network can emerge” (Wiley, 2016, para. 18). Increasingly examples of the benefits of open and networked learning can be found in the development of student eportfolios, social networks, and personal websites which showcase academic works developed through the course of study.

The literature suggests that faculty should be encouraged to design assignments which involve students in the creation and adaptation of OER (Jhangiani et al., 2016). Engaging students in the production of OER levels the student-teacher relationship while engaging students as co-producers of knowledge (Masterman, 2016). Faculty in Masterman’s (2016) study reported that engaging students with OEP supported the development of communication, analytical, and problem solving skills. Hodgkinson-Williams & Paskevicius (2012) study investigated students’ development of agency as they engaged in the development of OER in collaboration with faculty. This collaboration resulted in the development of students’ digital literacies while preserving the time that faculty would have had to invest in reworking and distributing their own existing materials as OER. Involving students in the production of OER allowed them to practice developing digital literacies using both informal and formal tools and learning environments. Students developed creative agency as they worked, initially removing unnecessary details or addressing copyrighted concerns, then questioning the pedagogic design and presentation of the materials. This feedback was presented to faculty and the team worked together to address technical and pedagogical issues.

When exploring more openness in relation to assessment and evaluation, some faculty have expressed concern this may lead to students copying open versions of previous students’ work or sourcing content from the web in academically inappropriate ways (Glud, Buus, Ryberg, Georgsen & Davidsen, 2010; Waycott et al., 2010). While this does become possible with more open methods of assessment and evaluation, it may be managed through alternative learning designs which challenge students to build upon, critique, or evaluate previous students work and adhere to explicit attribution and citation inherent in the practice. A core feature of OER is the practice of attribution and usage as defined by the permissions embedded in open licences. Developing student literacies around how to interpret open licenses, attribute authorship, and appropriately provide links back to the source are valuable for working on the open web and in developing creative works. In doing so students may further develop an understanding of how adopting open licenses for their own works might enable the creative process of others, further developing the commons.

Conversely, faculty have voiced concern about students creating inaccurate resources and a need for quality control of student generated OER (Masterman & Chan, 2015). Peer-review and
assessment of student works may help alleviate some of these issues. However, these are valid operational issues for enacting OEP around assessment and can be addressed through the thoughtful design and alignment of the assessments to the learning outcomes. Further research is needed to better understand how engaging students with OEP as part of assessment impacts their knowledge creation processes and practices.

Discussion

There is mounting evidence that suggests engagement with OEP has the potential to transform educational practices by shifting the relationships among faculty, between faculty and students, and between faculty and organisations (Ehlers, 2011; McGill et al., 2013; Masterman, 2016). In terms of instructional practice, these changes show “potential to flatten the traditional hierarchy and change the balance of power in learner/teacher relationships” (McGill et al., 2013, p. 7). The potential for increasing accessibility and promoting the sharing of learning outcomes, resources, activities, and assessment designs among faculty represents a great opportunity to collectively improve educational practice, within and across disciplines.

Constructive alignment provides a framework to situate examples of OEP within a pedagogically sound model for the design of instructional practice. Figure 1 provides a visual model of the main themes of OEP drawn from the literature within the model of constructive alignment. For each of the elements of the model, examples are provided which may guide faculty towards how to consider OEP as part of their design or redesign process. For example, when designing assessment and evaluation activities, faculty may enact OEP by exploring ways in which they can engage students as producers of content, find ways to integrate peer-review and assessment, promote student collaboration, and develop digital literacies. Additional examples may be developed to further enhance this model, however this provides a starting point for faculty familiar with learning design, but not OEP, to conceptualize their practice.

Figure 1: Aspects of OEP within the model of constructive alignment
Despite the opportunities presented through this new landscape of OEP, many in higher education operate largely as they did in the past (McGoldrick, Watts & Economou, 2015). Both leadership and professional development are needed to support a shift to OEP. Additionally, further research is needed to better understand the phenomenon of OEP and their impacts on faculty and students. It has been suggested that educational leadership should embrace “openness as a core organizational value if [they] desire to both remain relevant to its learners and to contribute to the positive advancement of the field of higher education” (Wiley & Hilton III, 2009, p. 1). Further recommendations have been made to embed support for engaging with openness as part of the institutional mission (Masterman & Chan, 2015). In many ways, the ethos of higher education is closely aligned to the open education movement, however, it is often not made explicit or done in a coordinated way. For Lerman, Miyagawa and Margulies (2008) “open sharing of knowledge is at the heart of the academic process. For many faculty, it is an intrinsic value, convincingly demonstrated in their teaching and research” (2008, p. 214). Willinsky (2014) further argues that by opening access to the teaching, learning, and research processes which occur in universities, we promote the possibility for unintended lessons and unexpected interests among new groups of individuals in society. Openness is a way of engaging with our communities, offering a window into the activities happening on our campuses while inviting broader access and participation from individuals who might not have traditionally had contact with the institution (McGill et al., 2013; Willinsky, 2014).

Engaging students with OEP may contribute to the development of valuable literacies for working in the information age. Despite the increased availability and breadth of available OER, students report limited awareness of what this means and how to locate these resources (Czerniewicz, 2016). More research is needed into how engaging students with OEP might impact their own personal knowledge and creative practices (Carey et al., 2015). Engaging students with OEP may motivate students to become engaged in the learning process. By involving them as contributors, collaborators, partners, knowledge creators, and reviewers which can lead to enhanced learning experiences (Nel, 2017). Students may further benefit from the opportunity for peer-review, assessment, and feedback enabled by the integration of OEP into assessment design. By inviting students to make selections of their work more visible to their peers and the wider public we present opportunities for community engagement, network formation, and experiential learning.

A remaining challenge is higher education’s entrenched relationship with closed systems and copyright enforced content. Most higher education institutions have invested in some form of LMS, a toolset characterized by its closed, ridged, over functioned, and inflexible nature (Broekman, Hall, Byfield, Hides & Worthington, 2014). Many faculty gravitate towards using the LMS as a consequence of its availability (Bennett, Dawson, Bearman, Molloy & Boud, 2016). The physical and digital boundaries created by these environments determine available pedagogies (L. M. Lane, 2009; Dron, 2016). Porter (2013) suggests that the rigid technical frameworks which the LMS typically employs may act as a barrier to the creation and use of OER. Therefore, tools which explicitly support OEP should also be considered as part of the institutional offering. New forms of digital technologies are providing opportunities to enact flexible pedagogies which promote student agency, autonomy, and self regulation (Evans, Muijs, & Tomlinson, 2015).

The literacies which support these emergent practices may not come naturally by learning about and interacting with OER alone. Professional development and further training is needed to become equipped with the skills necessary to effectively leverage OEP for enhancing pedagogy (Petrides et al., 2011). This is also true for students, who may not have previously engaged with OEP (Ross, 2012). Allocating time to develop literacies in OEP as well as time to work with colleagues to develop and share practices are cited as significantly important considerations for fostering OEP (Kimmons, 2016). Faculty highly value time to collaborate with other teaching professionals and generate opportunities.
for open and shared practice (Petrides et al., 2011; Lyons et al., 2014; Karunanayaka et al., 2015; Masterman & Chan, 2015; Kimmons, 2016). Engaging faculty with professional development opportunities around OEP are noted as essential elements to increasing engagement with OEP (Borthwick & Gallagher-Brett, 2014; Kimmons, 2016).

Conclusion

The open movement has come a long way in higher education, as awareness has grown in terms of what OER can offer faculty, the potential cost savings for students, and the impact of collaboration and open sharing of teaching and learning practices. The emergence of OEP reinforces that “open education is not just about disseminating resources […] but also about an opportunity toward broadening and deepening our collective understanding of teaching and learning” (Iiyoshi & Kumar, 2008, p. 439). Situating OEP within the model of constructive alignment allows faculty to envision how open practices might fit into their landscape of practice. Furthermore, integrating OEP in a deliberate way, always with a focus towards contributing to meaningful learning outcomes, ensures that OEP contribute to aligned and meaningful instructional practice.

Acknowledgment

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th-10th 2017 (http://conference.oeconsortium.org/2017), with whom Open Praxis established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in Open Praxis.

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*Open Praxis, vol. 9 issue 2, April–June 2017, pp. 125–140*


Pragmatism vs. Idealism and the Identity Crisis of OER Advocacy

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Abstract

The open education (OE) movement is in its adolescent years and experiencing an identity crisis as it is pulled towards both pragmatism (marked by an emphasis on cost savings, resources, and incremental change) and idealism (marked by an emphasis on permissions, practices, and radical change). In this article, I describe these tensions (free vs. freedom; evolution vs. revolution; and resources vs. practices) before going on to argue in favour of a nuanced resolution to this Eriksonian crisis that reflects the diverse needs and motivations of educators. The merits of an integrated approach and its implications for the future trajectory of the OE movement are discussed.

Keywords: Open educational resources; open educational practices; advocacy; pencil metaphor; psychology; Erikson

Introduction

At the opening of the 2016 Open Education conference its founder David Wiley remarked that this “annual family reunion” had entered its teenage years, an observation that carried greater significance than a casual comment about the longevity and growth of that meeting. Indeed, 2016 marked the 15-year anniversaries of the founding of Creative Commons (CC) and the launch of MIT Open Courseware (MIT OCW), both seminal events that marked the birth of the modern open education (OE) movement and undeniably influenced its trajectory (Bliss & Smith, 2017; Centre for Educational Research and Innovation, 2007). The development of the CC licenses provided a common tongue and a framework for an emerging culture of formalized sharing. MIT’s initiative (revolutionary at the time) was equally important and modeled institutional leadership and lent some prestige to the rapidly growing body of what UNESCO would go on in 2002 to name open educational resources (OER). Fifteen years later, CC licenses are the standard for open licensing within education, having been applied to more than a billion OERs (Creative Commons, 2015), while countless institutions have followed MIT’s lead in embracing a post-content identity by openly licensing their courseware.

The OE movement has made and continues to make great strides, with the creation, adaptation, and adoption of OER slowly becoming a mainstream practice (Allen & Seaman, 2014; Weller, de los Arcos, Farrow, Pitt & McAndrew, 2016). However, as the adolescent OE movement enters a growth spurt that may see its use as primary courseware triple within five years (Cengage Learning, 2016), some noticeable paradoxes have emerged that hint at an identity crisis within the OE movement and, in particular, within OER advocacy. Although these tensions are to some degree symptomatic of broader participation in a maturing movement, they cut to the core of the objectives and strategies of OER advocates and are consequently worthy of being openly described and debated. In what follows I will briefly introduce these tensions before interrogating them through a borrowed theoretical lens from developmental psychology.
Free vs. Freedom

Open education advocates customarily define OER as “beyond free” based on the permissions to reuse, revise, remix, retain, and redistribute these resources (Wiley, 2014). However, in practice, OER advocacy usually centers on the unaffordability of commercial textbooks and the cost savings associated with the adoption of open textbooks (i.e. merely “free”; Wiley, 2016). On the one hand, this appears appropriate, even pragmatic, given the significance of the burden of student loan debt in places such as North America and the impact of escalating textbook costs on students’ educational choices and outcomes (Florida Virtual Campus, 2016; Student PIRGs, 2016). Moreover, textbooks are a familiar entity to academics, and, unlike with tuition fees and costs of living, faculty control adoption decisions and consequently the cost of required course materials. At the same time, this narrow focus on cost savings is immediately less relevant in countries where faculty are less reliant on expensive textbooks. In fact, it may not even be pragmatic in North America, as recent research shows that the cost of resources is the least-considered factor for U.S. faculty when assigning required course materials (Allen & Seaman, 2014). Moreover, although a cost-savings framing appeals most directly to student groups, as pointed out it is faculty who control adoption decisions.

A final thought concerns whether framing OER in terms of free/zero cost (which is, after all, only one among several implications of open licensing) may unintentionally constrain the use of the freedom/permissions that come along with OER. In other words, focusing largely on the cost savings risks creating a community that predominantly consists of OER adopters who seek to replicate their current practice (e.g., designing courses around the table of contents of a textbook) using a new set of tools instead of taking advantage of the defining features of the new tools (the 5R permissions) to do something new (e.g., modifying instructional resources to serve pedagogical goals). Indeed, faculty who reuse, redistribute, and retain OER (themselves a minority) continue to greatly outnumber those who revise and remix OER (e.g., Jhangiani et al., 2016), a pattern that may be perpetuated through the best of intentions of OER advocates.

As Weller and his colleagues put it,

if cost savings were the only goal, then OERs are not the only answer. Materials could be made free, or subsidized, which are not openly licensed. The intention behind the OER approach is that it has other benefits also, in that educators adapt their material, and it is also an efficient way to achieve the goal of cost savings, because others will adapt the material with the intention of improving its quality, relevance or currency. (Weller et al., 2016, pp. 84–85)

Evolution vs. Revolution

OER advocates routinely tout the transformational power of the Internet and the advantages of digital technologies as they enable the marginal cost of reproduction and distribution of educational resources to approach zero (Wiley, Green & Soares, 2012). However, the OER movement itself continues to grapple with questions from a pre-digital past, such as the production of updated editions of open textbooks and provision of professionally-bound print copies. This begs a broader question: If open educational practices are a game changer, why are OER advocates playing by the rules of the commercial textbook industry?

A partial answer to this question comes from the many educational contexts (e.g., sub-Saharan Africa) where access to the internet, the cost of data, and power cuts remain significant barriers (Agence Française de Développement, Agence universitaire de la Francophonie, Orange & UNESCO, 2015).
In contexts such as these it is far more practical to work with print textbooks instead of multimedia platforms and static textbook updates rather than dynamic wikis. Moreover, even within the context of higher education in North America, the absence of traditional ancillary materials such as question banks and adaptive learning platforms remain significant stumbling blocks that inhibit the widespread adoption of high quality open textbooks.

However, despite these realities, the question remains as to whether adopting the model of the commercial textbook industry runs the risk of dragging along a traditional mindset based on the top-down delivery of static and (falsely) scarce information? Framing OER as free, digital versions of expensive, print textbooks also risks playing directly into the hands of commercial textbook publishers who are in the midst of a pivot away from a business model based on peddling “new editions” of print textbooks every three years (content) to one based on leasing 180-day access to digital content delivery platforms (services; Feldstein, 2016; Kim, 2012). As post-secondary administrators begin to more seriously consider the social and fiscal consequences of high textbook costs, it will be tempting for them to capitulate to aggressive sales pitches from publishing coalitions that trade faculty choice and student agency for slightly discounted digital textbooks. In order to avoid the most effective arguments of OER advocates being further co-opted by commercial publishers (whose brochures for digital delivery already cite data on the impact of OER adoption on student outcomes; Pearson Education, 2016) and especially to realize the full potential of OER, the goal posts must be placed further than simply cheaper textbooks. As Robin DeRosa, an open educator who clearly favours revolution over evolution, puts it, “Fundamentally, I don’t want to be part of a movement that is focused on replacing static, over-priced textbooks with static, free textbooks” (2015, para 2).

Resources vs. Practices

The tensions between cost savings and textbooks on the one hand and the affordances of open licenses and digital technologies on the other are manifested by contrasting emphases on OER vs. open educational practices (OEP). The latter is a broader, superordinate category that encompasses the creation, adaptation, and adoption of OER and even open course design and development (Andrade et al., 2011; Ehlers, 2011; Murphy, 2013), but which places pedagogy (and therefore learners) at its core. OEP most often manifests in the form of “renewable” course assignments (Wiley, 2013) in which students update or adapt OER (e.g., with local examples or statistics), create OER (e.g., instructional videos or even test questions), or otherwise perform scaffolded public scholarship (e.g., writing op-ed pieces or annotating readings on the open web; Jhangiani, 2015b). Crucially, adopting OEP requires more of a shift of mindset than does adopting OER, more critical reflection about the roles of the teacher and the learner when education continues to be based on content consumption rather than critical digital literacy despite information (and misinformation) being abundant (Shaffer, 2016). As David Wiley writes in his blog (albeit with the byline “pragmatism over zeal”), “when faculty ask themselves ‘what else can I do because of these permissions?’, we’ve come within striking distance of realizing the full power of open (2016, para 16).”

Happily, advocating for OEP also avoids the problem of inadvertently striking a judgmental tone when describing non-OER users (who may have excellent reasons supporting their choice) because discussions about innovation are not driven by guilt or avoidance. Rather, OEP articulates a vision of education that is aspirational and driven by an “approach motivation” (Elliot & Covington, 2001). Within this broader vision, significant cost savings to students can be considered to be the least significant benefit of OER.
Pragmatism vs. Idealism: A Psychosocial Crisis?

The psychologist Erik Erikson articulated an eight-stage theory of psychosocial development that centers on an adolescent crisis between identity and role confusion (1956; see Table 1). During this stage, which persists through the college years, the adolescent begins to struggle with questions about who they really are and what they hope to achieve. According to Marcia (1966), although wrestling with these questions (“moratorium”) is itself important, this struggle is ultimately resolved successfully by those who develop a strong and clear sense of identity (“identity achievement”), something that equips them to remain true to their self and their course in the face of serious obstacles. This is in direct contrast to those who either adopt an identity as a result of expectations or some other external pressure (“foreclosure”) or do not wrestle with these questions at all (“identity diffusion”).

Table 1: Erikson’s stages of psychosocial development

<table>
<thead>
<tr>
<th>Stage</th>
<th>Psychosocial crisis</th>
<th>Basic virtue</th>
<th>Age</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Trust vs. mistrust</td>
<td>Hope</td>
<td>Infancy</td>
</tr>
<tr>
<td>2</td>
<td>Autonomy vs. shame</td>
<td>Will</td>
<td>Early childhood</td>
</tr>
<tr>
<td>3</td>
<td>Initiative vs. guilt</td>
<td>Purpose</td>
<td>Play age</td>
</tr>
<tr>
<td>4</td>
<td>Industry vs. inferiority</td>
<td>Competency</td>
<td>School age</td>
</tr>
<tr>
<td>5</td>
<td>Identity vs. role confusion</td>
<td>Fidelity</td>
<td>Adolescence</td>
</tr>
<tr>
<td>6</td>
<td>Intimacy vs. isolation</td>
<td>Love</td>
<td>Young adulthood</td>
</tr>
<tr>
<td>7</td>
<td>Generativity vs. stagnation</td>
<td>Care</td>
<td>Middle adulthood</td>
</tr>
<tr>
<td>8</td>
<td>Integrity vs. despair</td>
<td>Wisdom</td>
<td>Maturity</td>
</tr>
</tbody>
</table>

Note. Adapted from Erikson (1959).

Although Erikson developed his theory to better understand lifespan development within individuals and not social movements, it is difficult to ignore the parallels between the tensions of an adolescent OE movement and the adolescent identity crisis that he described. Specifically, I believe that the frictions described above between “merely free” and “beyond free,” resources and practices, and evolution and revolution are each symptomatic of a psychosocial crisis within the OE movement that pits pragmatism against idealism.

Although OER advocates may understand and even experience both impulses, their goals and strategies often reflect one or the other. For example, whereas idealists push for radical change that questions the status quo, pragmatists seek to build incrementally on the status quo. Whereas idealists might work through collaborative networks such as faculty learning communities, pragmatists might work to create grant programs for individual faculty to create, adapt, or adopt OER. And whereas idealists emphasize learner-centered, personalized solutions that foreground process and agency, pragmatists emphasize instructor-centered, turnkey solutions that foreground content and efficiency.

Outlined like this, it is easy to recognize the merits of both strategies. Indeed, idealists would do well to recognize that open textbook adoption tangibly benefits students and faculty in material and educational terms that are not insignificant. On the other hand, pragmatists might recognize that the idealistic approach is appealing to those for whom the construct of a traditional textbook is a dinosaur best served by a meteor strike (and can therefore be pragmatic).
An Integrative Resolution to the Crisis

Given that Erikson believed that the individual could not be understood in terms that were separate from his or her social context (1959), I believe the key to resolving this crisis lies with an integrated approach that is sensitive to the diversity across and within the audiences whom we seek to serve. While this is a departure from the traditional one-sided resolution of the Eriksonian crises, it does reflect what Erikson described as the strong influence of the peer group in shaping the adolescent’s emerging identity. Moreover, a nuanced and inclusive approach is more likely to foster the development of the virtue of fidelity, which Erikson described as the ability to associate with and relate to different others.

McKeown’s “pencil metaphor” (n.d.) is an especially useful model that helps shed light on the “different others” within the population of potential OER users (see Figure 1). Indeed, shortly after this model was first applied to OER advocacy at the 2015 Open Textbook Summit in Vancouver, Canada (Jhangiani, 2015a), the William and Flora Hewlett Foundation (among the biggest funders of OER initiatives, including MIT OCW and CC) embedded it within its revised strategy for investing in OER (Bliss, 2015).

An echo of Rogers’ (1962) innovation adoption lifecycle, this model maps potential adopters of new educational technologies (grouped into six categories) onto the structure of a pencil. It includes “leaders” (innovators who will experiment in the absence of support and occasionally in the face of opposition and share their experiences with others), “sharp ones” (early adopters who notice and draw on the work of the innovators), the “wood” (those who would adopt the new technology if it was handed to them in a fashion that made it easy to implement and was well supported), “ferrules” (who doggedly cling to familiar practices), and “erasers” (who actively work to undo the work done by the leaders).

![Figure 1: “The pencil metaphor” by The William and Flora Hewlett Foundation is licensed under CC BY 4.0](image-url)
As I have written elsewhere when applying this model to potential OER users:

For faculty who enjoy experimenting and innovating [leaders and sharp ones], open textbook adoption does feel like a meagre position to advocate. These are instructors who care deeply about authentic and open pedagogy, who may take full advantage of the permissions to revise and remix, and who understand that adopting OEP is really just about good pedagogy and in that sense is not at all radical . . . Scrutinizing the wood, I observe faculty who currently adopt high-priced, static textbooks but care enough about their students to feel guilty about this decision (principled agents in a principal-agent dilemma?). In at least some of these cases, the ensuing guilt leads them to bend the course to map onto the textbook, which, while not an example of great pedagogy, could be construed as an empathic response that ameliorates both their guilt and their students’ resentment. This is the region of the wood where the social justice case for open textbooks may resonate particularly well. (Jhangiani, 2017b)

An alternative, data-driven approach to understanding different types of potential OER users comes from the work of Weller and his colleagues (2016), whose research at the Open Education Research Hub reveals three categories of OER users:

1) The OER active are engaged with issues around open education, are aware of open licenses, and are often advocates for OERs . . . An example of this type of user might be the community college teacher who adopts an openly licensed textbook, adapts it and contributes to open textbooks. (pp. 80-81)

2) OER as facilitator may have some awareness of OER, or open licenses, but they have a pragmatic approach toward them. OERs are of secondary interest to their primary task, which is usually teaching . . . Their interest is in innovation in their own area, and therefore OERs are only of interest to the extent that they facilitate innovation or efficiency in this. An example would be a teacher who uses Khan Academy, TED talks and some OER in their teaching. (p. 82)

3) Finally, OER consumers will use OER amongst a mix of other media and often not differentiate between them. Awareness of licences is low and not a priority. OERs are a “nice to have” option but not essential, and users are often largely consuming rather than creating and sharing. An example might be students studying at university who use iTunes U materials to supplement their taught material. For this type of user, the main features of OERs are their free use, reliability and quality. (p. 85)

Similar to the pencil metaphor, this taxonomy also serves as a useful guide to OER advocates seeking to diversify or tailor their outreach strategy. For instance, OER consumers may be most interested in open textbooks and related ancillary resources that can be deployed with little or no effort. For this group, unfettered access for their students is highly desirable, with cost savings a nice bonus. On the other hand, the OER active group will be more sensitive to the impact of cost savings while also keen to learn more about the permissions to revise and remix OER. Finally, those in the OER as facilitator group will be excited by the potential to involve students in the creation or adaptation of OER via renewable assignments.

The benefits of an integrated approach truly come to the fore when advocates begin to consider the exciting synergies afforded by the diversity within our movement. For example, the OER active (those at the leading edge of the pencil) or even the OER-as-facilitator group may be tapped to produce secondary learning resources (such as question banks) that are required by the OER consumers (the wood of the pencil). A concrete example of this is when Jhangiani (2017a) designed a course assignment wherein students enrolled in his Social Psychology course wrote and peer reviewed...
multiple-choice questions during every week of the semester. Appropriated scaffolded along the way, this small class of 35 students wrote and reviewed 870 questions by the end of the semester. Although this student-produced question bank required some polishing before it could be considered ready for use by other instructors, it reveals a viable pathway towards the creation of open ancillary resources, one that primarily serves deeper learning while secondarily serving the commons.

**Caveats**

No matter what theoretical lens one applies to describing OER users, it is important to understand that in practice these individuals may evolve over time and move into a different category. For instance, an instructor who begins by simply adopting an open textbook (an OER consumer) may over time gain the familiarity, efficacy, and the necessary skills to modify the open textbook to better suit their pedagogical context (becoming OER active), perhaps later even developing and sharing activities and presentation slides to accompany the different chapters. As David Wiley puts it, “the overwhelming majority of people begin as evolutionaries and, given time and opportunity, go on to become revolutionaries. They “come for the cost savings and stay for the pedagogy” (2017, para 6).

Despite its merits, it would be naïve to believe that adopting an integrated approach would eradicate all tension within the OE movement. Idealists may still insist that OER creators apply CC licenses that meet the definition of “free cultural works” (Freedom Defined, 2015). Pragmatists, on the other hand, will acknowledge that OER creators may have reasonable grounds for attaching a Noncommercial (NC) or even a NoDerivatives (ND) clause, even though an Attribution-only license (CC-BY) facilitates the maximum impact and reuse of OER. Pragmatists may also wish to first ensure basic access for all before emphasizing the innovative potential of open pedagogy (a kind of Maslowian hierarchy of pedagogical needs) whereas idealists may think it arrogant to insist that students first need access to required resources before partnering in pedagogical innovation. Although these tensions will not disappear overnight, I believe it essential that we recognize both drives and have a deliberate, nuanced conversation about how to flexibly harness both idealism and pragmatism in service of the goals of the OE movement. If we don’t, we risk achieving maladaptive outcomes of adolescence such as fanaticism (rigidity and self-importance) or repudiation (social disconnection).

**Conclusion**

The adolescent OE movement is in the midst of an identity crisis as it is pulled towards both pragmatism (marked by an emphasis on cost savings, resources, and incremental change) and idealism (marked by an emphasis on permissions, practices, and radical change). In this article I argue in favour of a nuanced resolution to this psychosocial crisis that reflects the diverse needs and motivations of the educators that comprise the bulk of the audience of OER advocates.

According to the epigenetic principle of Erikson's maturation timetable, each stage builds on the previous one. Accordingly, the crises that follow adolescence pit intimacy against isolation (young adulthood), generativity against stagnation (middle adulthood), and, finally, integrity against despair (later adulthood). If these at all suggest a trajectory for the OE movement beyond its current adolescence, its advocates should aim for the next phase to involve a lot more collaboration among faculty and students, both across institutions and cohorts. This shift will require tools that support radically transparent collaboration (e.g., see the Rebus Community for Open Textbook Creation; https://forum.rebus.community/) but especially a break from traditional (opaque, territorial, top-down) approaches to curriculum design and development. As the proverb says, “if you want to go quickly, go alone. If you want to go far, go together.”
Greater collaboration and a true democratization of the process of OER development will in turn engender a move away from philanthropic, government, and other unsustainable funding models in favour of a grassroots-based, community-driven, self-sustaining approach that resembles a bazaar in its connectivity and generativity far more than it does a cathedral (Raymond, 1999).

Achieving this, while neither easy nor assured, is a necessary step for the OE movement on its path to becoming more critical, more self-aware, and more inclusive of a diversity of voices. In other words, a movement characterized by integrity, not despair.

Acknowledgements

The author would like to thank Robin DeRosa, Clint Lalonde, Nate Angell, Jamison Miller, David Wiley, and two anonymous reviewers for their insightful comments on an earlier version of this manuscript.

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th-10th 2017 (http://conference.oeconsortium.org/2017), with whom Open Praxis established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in Open Praxis.

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*Open Praxis*, vol. 9 issue 2, April–June 2017, pp. 141–150
An OER framework, heuristic and lens: Tools for understanding lecturers’ adoption of OER

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Abstract

This paper examines three new tools – a framework, an heuristic and a lens – for analysing lecturers’ adoption of OER in higher educational settings. Emerging from research conducted at the universities of Cape Town (UCT), Fort Hare (UFH) and South Africa (UNISA) on why lecturers adopt – or do not adopt – OER, these tools enable greater analytical insights at the institutional and cross-institutional level, and hold the potential for generic global application. The framework – the OER Adoption Pyramid – helps distinguish and compare the factors shaping lecturers’ OER adoption which are both immediate (over which they have personal control) and remote (over which they have less or no control). The heuristic – the OER Readiness Tables – derives from the Pyramid and provides a visual representation of the institutions’ obstacles and opportunities for OER engagement. The lens – of “institutional culture” – nuances these comparisons so that the analysis remains attentive to granular, idiosyncratic variables shaping OER decisions. We believe this research will have value for scholars interested in researching OER adoption, and institutions interested in promoting it.

Keywords: OER adoption; OER factors; motivation; OER readiness; institutional culture

Introduction

The potential benefits of open educational resources (OER) are advocated widely (West & Victor, 2011) and include increasing access to higher education, decreasing its costs, and improving the quality of materials that result from collaboration and peer scrutiny (Daniel, Kanwar & Uvalić-Trumbić, 2006). In the Global North, where higher education institutions (HEIs) are comparatively well-resourced, a number of universities, such as MIT, have launched expansive initiatives that share OER with the public. However, despite the infrastructural and resource capacities of many Northern HEIs, OER adoption has yet to become a normative practice across all faculties and disciplines (Kortemeyer, 2013). The reasons most commonly cited for this revolve around a series of deficits, including a lack of: awareness, permission (to create and share), high-quality OER to use, interest, time, and institutional recognition (as shown in Table 1).

Nevertheless, many of the purported benefits inherent to OER would have their greatest impact and utility in the less well-resourced 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 use. And the fact that lecturers in the Global South can add locally relevant materials online for other lecturers in the region to use – and thereby move away from a dependence on Northern-based materials – would also, presumably, encourage them to engage in OER creation and sharing.

To explore and enhance this potential, a number of OER initiatives have been launched in the Global South (often in collaboration with, or funded by, a Northern partner). 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; Samzugi & Mwinyimbegu, 2013) – where this paper’s study is located – but in the broader Global...
South (Dhanarajan & Porter, 2013; Hatakka, 2009). Some of the reasons given for this overlap with those given in the Global North, but also include: infrastructural access deficits, technical capacity issues and socially and pedagogically related challenges (Table 1).

Table 1: Reasons given for lack of OER adoption in the Global North and South

<table>
<thead>
<tr>
<th>Variables</th>
<th>Global North studies</th>
<th>Global South studies</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of OER awareness</td>
<td>Reed, 2012; Rolfe, 2012</td>
<td>Hatakka, 2009; Samzugi &amp; Mwinyimbegu, 2013</td>
</tr>
<tr>
<td>Lack of legal permission to create and share OER</td>
<td>Fitzgerald &amp; Hashim, 2012</td>
<td>Mtebe &amp; Raisamo, 2014; Flor, 2013; Tynan &amp; James, 2013</td>
</tr>
<tr>
<td>Lack of personal interest or motivation</td>
<td>McGill, Falconer, Dempster, Littlejohn &amp; Beetham, 2013; Pegler, 2012; Reed, 2012; Rolfe, 2012</td>
<td>Cox, 2016; Gunness, 2012; He &amp; Wei, 2009</td>
</tr>
<tr>
<td>Lack of time</td>
<td>Allen &amp; Seaman, 2014</td>
<td></td>
</tr>
<tr>
<td>Lack of institutional recognition for OER adoption</td>
<td>Jhangiani, Pitt, Hendricks, Key &amp; Lalonde, 2016</td>
<td></td>
</tr>
<tr>
<td>Infrastructural challenges, such as low levels of internet penetration, broadband availability, and electricity stability</td>
<td></td>
<td>CERI/OECD, 2007; Ngimwa, 2010</td>
</tr>
<tr>
<td>Technical capacity</td>
<td>Lesko, 2013; Wolfenden, Buckler &amp; Keraro, 2012</td>
<td></td>
</tr>
<tr>
<td>Social and pedagogical norms</td>
<td>Cox, 2012; Wolfenden, Buckler &amp; Keraro, 2012</td>
<td></td>
</tr>
</tbody>
</table>

To date, there has been little research conducted on South African lecturers’ adoption of OER, though there has been growing interest in the field. 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 University of Cape Town (UCT). Cox (2012; 2013; 2016) also examines the situation at UCT, focusing on lecturers’ motivations for using and creating OER. Lesko (2013) provides a useful overview of some of the issues involved in academics’ perceptions of OER adoption based on survey data from multiple South African universities. Additionally, de Hart, Chetty and Archer (2015) share the results of a survey conducted with staff from the University of South Africa (UNISA) at a time when it was developing an OER Strategy (UNISA, 2014).

These studies provide a good starting point for understanding some of the pertinent factors relating to OER adoption amongst HEI lecturers in South Africa. They helped shape the research that we conducted with the Research on Open Educational Resources for Development (ROER4D)¹ project in which we sought to understand:

- why lecturers adopt, or do not adopt, OER at three South African universities; and
- how such adoption decisions are shaped by a variety of pertinent factors and variables.

(‘Adoption’ here refers to the use and/or creation of OER.)

¹ http://roer4d.org/

Open Praxis, vol. 9 issue 2, April–June 2017, pp. 151–171
The answers to these questions are fascinating and treated in more detail elsewhere (Cox & Trotter, in press), but in this paper we want to focus on the analytical frameworks, heuristics and lenses that we used to grapple with and extend the value of our data. These analytical devices emerged during the research and analysis process, allowing greater insight not only into the OER adoption activities at these specific research sites, but potentially – as we will argue – to other institutional sites that other OER scholars may engage.

Thus, while we discuss some of the findings that emerged from this research, we do so mainly as a way of assessing the value of the analytical tools that we developed during that research process. They are:

1. An analytical framework: The OER Adoption Pyramid
2. A comparative heuristic: OER Readiness Tables
3. A differentiating lens: The Institutional Culture approach

The purpose of this paper is to examine these analytical frameworks in order to illustrate their potential in other contexts. Our hope is that these tools may have analytical value for other researchers who study OER adoption, especially at the higher education level.

**Methodology**

For our ROER4D research, we conducted interviews with 18 lecturers at UCT, the University of Fort Hare (UFH) and UNISA, focusing on lecturers’ teaching practices as they relate to (potential) open educational activity. In a national context of 26 public universities (and no private ones of similar size or mandate), these three universities possessed qualities that, in their different ways, mirrored a number of the qualities of the other 23, making them useful for comparative purposes.

UCT is a traditional, urban, residential, medium-sized (26 000 students), research-intensive university with a predominantly face-to-face teaching model. It is comparatively well resourced, historically white (legally so during apartheid), and “privileged” (in South African parlance).

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”.

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.

These three universities, in total, possess a broad spectrum of differentiating qualities shared amongst 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, historically black/white/multi-racial, and various levels of historical privilege.

We initiated the research process by carrying out OER workshops at each university in March 2015. Each of the workshops included between 12–19 participants (43 in total at the three sites) and ran for a day-and-a-half, covering the Open movement, opportunities afforded by OER, how and where to find OER online, Creative Commons licensing, and a practical process of adapting or creating an OER.

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.

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2 In South Africa, “traditional” universities offer degrees based on theoretical knowledge, while “comprehensive” universities offer a combination of academic and vocational diplomas and degrees.
After completing the workshops, we conducted one-on-one, in-depth interviews with six selected lecturers at each university, chosen mainly from the field of 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.3

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.

Upon completing the research, interviews were transcribed and the resulting transcripts were compiled for coding according to the concepts identified during the project proposal phase, 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.

**An Analytical Framework: The OER Adoption Pyramid**

When we initially planned this research, we imagined that we would focus solely on the first research question concerning the motivations shaping lecturers’ OER adoption activities, or lack thereof. Essentially we wanted to know why they were choosing to adopt OER, or choosing not to adopt OER. We started with this approach due to the circumstances of our own institutional context, UCT, where lecturers were allowed — and even encouraged and supported — to use and create OER. Thus, we assumed that a focus on individual motivations would be appropriate for understanding why they do so, or not.

However, we quickly learned that personal motivation was, for many of our research subjects (especially at UNISA and UFH), irrelevant to whether or not they adopted OER. This was because there were other institutional factors that pre-empted them from even thinking about OER adoption activities, such as a lack of OER awareness, or the lack of an IP policy that allows them to share their teaching materials openly. We realised that, not only was motivation just one of many factors determining OER activity, it was the last one in a chain of factors.

Most OER studies, of course, recognize that there are a multiplicity of factors shaping lecturers’ OER choices, even if they ultimately focus on one or two of them as being the most pertinent — as we did by focusing initially with motivation. However, many of them present these factors as serialised lists (e.g. CERI/OECD, 2007; Hatakka, 2009; Pegler, 2012), as if there was a sort of equivalence between them. But our research suggested that many of the factors were actually qualitatively different from each other, and therefore required careful and consistent delineation between them.

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 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.

In addition, as we learned, 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, they can only be considered potential OER creators if they hold copyright over their teaching materials. In many instances, they do not, as copyright is held by their employers, the institution (Trotter, 2016). When this is the case, the institution should be, analytically speaking, 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 used for instruction, if copyright belongs to the institution, then it is the agent responsible for deciding whether the materials can/will be made open or not. Because of this – and the fact that our research sites had varying intellectual property (IP) policies – we had to broaden the scope of our analysis beyond just lecturers as OER adoption decision-makers include, at times, the institution as well.

To address these challenges, we developed an analytical framework based on what we found in the data which can be best described as an “OER adoption pyramid” (Trotter & Cox, 2016). Inspired by Maslow’s hierarchy of needs (Maslow, 1943), it helped us analyse OER activity in the three university research sites and provide a way for assessing the relative importance of a particular factor on lecturers’ (or institutions’) OER adoption activities. The choice of the pyramid suggests a certain prioritisation of factors from the viewpoint of lecturers, in that the factors at the bottom – which are largely externally determined (by the state or the institution) – form a foundation upon which personal volition can be expressed. Without the factors at the bottom being positively provided for, it is difficult for the factors at the top to make much of a difference to eventual OER engagement.

![Figure 1: The OER adoption pyramid](image-url)
The OER adoption pyramid framework (Figure 1) consolidates the essential OER adoption factors into six categories, layered according to the level of control that individual lecturers have over them. Moving from factors that are more externally determined (bottom) to those that are more internally determined (top), they are: infrastructure access, legal permission, intellectual awareness, technical capacity, educational resource availability and individual (or institutional) volition.

**Access**
The first factor determining lecturers’ or institutions’ engagement with OER is access. This refers to having 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 factor that lecturers have the least control over, in that it tends to be determined 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; etc.). For OER creation, it is typically the institution’s Intellectual Property policy that determines whether the lecturers (the actual developers of the teaching materials) or the institution holds copyright over the teaching materials, and can therefore share them openly. (This legal sharing of educational materials openly is what we are calling OER “creation.”)

**Awareness**
The third factor is 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 lecturers’ or institutions’ capacity, or technical and semantic skills, for using and/or creating OER (Lesko, 2013; Wolfenden, Buckler & Keraro, 2012). This capacity can be manifest in the individual lecturer or found through 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. For a potential user, this 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 judged by the user (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 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). 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 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 individual 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 abides across multiple sites at the university, as shown in Figure 2 (Cox, 2012; Cox & Trotter, 2016; Wolfenden, Buckler & Keraro, 2012).

**Individual volition**

At institutions where lecturers are the potential agents of OER activity, the elements shaping their volition are the personal, idiosyncratic, internal beliefs and practices that have bearing on whether 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, et al., 2012; Davis et al., 2010; Kursun, Cagiltay & Can, 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, 2016). This means that institutional management is in fact the unit of agential analysis regarding OER “creation”. 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 lecturers’ prevailing desires and the social norms of the faculties.

Thus, 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. But while the 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 absolutely necessary for OER engagement. That is, it purposefully keeps a narrow view on only those factors that must 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.
There are, of course, 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 2 shows which variables are associated with each factor, allowing us to see the role they play in the broader categorical distinctions provided here.

Table 2: Variables associated with six OER adoption factors (from bottom to top)

<table>
<thead>
<tr>
<th>OER Adoption Factors</th>
<th>Associated variables for OER users</th>
<th>Associated variables for OER creators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volition</td>
<td>• Teaching style</td>
<td>• Self-confidence in own teaching materials</td>
</tr>
<tr>
<td></td>
<td>• Education philosophy</td>
<td>• Concern about others misusing or misinterpreting their work</td>
</tr>
<tr>
<td></td>
<td>• Level of self-confidence in own teaching materials</td>
<td>• Impact on public profile</td>
</tr>
<tr>
<td></td>
<td>• Institutional incentives and recognition</td>
<td>• Institutional commitment (policies, strategies)</td>
</tr>
<tr>
<td></td>
<td>• Social context: departmental, disciplinary and collegial norms concerning using OER</td>
<td>• Institutional support (technical, financial, administrative)</td>
</tr>
<tr>
<td></td>
<td>• Cost/convenience considerations</td>
<td>• Institutional recognition (promotion, awards)</td>
</tr>
<tr>
<td></td>
<td>• Temporal ramifications for use</td>
<td>• Social context: departmental, disciplinary and collegial norms concerning sharing one’s own materials as OER, including implicit and formal recognition</td>
</tr>
<tr>
<td></td>
<td>Perception of an OER’s:</td>
<td>• Temporal ramifications for creation</td>
</tr>
<tr>
<td></td>
<td>• quality (accuracy, completeness, rigour)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• relevance (in terms of epistemic perspectives, scope, language, format, localisation, etc.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• utility (for a specific, anticipated teaching purpose)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Perception of one’s own teaching materials:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Quality</td>
<td>• Quality</td>
</tr>
<tr>
<td></td>
<td>• Relevance</td>
<td>• Relevance</td>
</tr>
<tr>
<td></td>
<td>• Utility (for other educators)</td>
<td>• Utility (for other educators)</td>
</tr>
<tr>
<td></td>
<td>• 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</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Legal knowledge concerning open licensing</td>
<td>• Legal knowledge concerning open licensing</td>
</tr>
<tr>
<td></td>
<td>• Technical skills to search for, identify, download and use (reuse “as is”, revise, remix) OER</td>
<td>• Technical skills to openly license one’s work and upload (retain and distribute) it for public access</td>
</tr>
<tr>
<td></td>
<td>Conceptual understanding of difference between OER and other (usually copyrighted) educational materials – as well as the difference between OER use and “fair use/dealing”</td>
<td>• Conceptual understanding of difference between OER and other (usually copyrighted) educational materials</td>
</tr>
<tr>
<td></td>
<td>Parameters of the OER’s open license</td>
<td>IP policies (institutional)</td>
</tr>
<tr>
<td></td>
<td>• Internet access</td>
<td>Copyright policies (national/institutional)</td>
</tr>
<tr>
<td></td>
<td>• Computer access</td>
<td>• Internet access</td>
</tr>
<tr>
<td></td>
<td>• Electricity provision</td>
<td>• Computer access</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Electricity provision</td>
</tr>
</tbody>
</table>
A Comparative Heuristic: OER Readiness Tables

While it was not our initial intention to assess the institutions’ levels of OER readiness – as we were more concerned with lecturers’ OER motivation – the analyses that emerged by assessing each one according to the OER Adoption Pyramid framework enabled us to compare how the factors shaped OER adoption potential at the three universities. Other scholars have performed similar analyses of “OER readiness” with lecturers at different institutions (Harishankar, 2013; Harishankar, Balaji & Ganapuram, 2013; McKerlich, Ives & McGreal, 2013; Ngimwa, 2010; Ngimwa & Wilson, 2012; Okonkwo, 2012; Tynan & James, 2013), though we found them less structurally and comparatively useful than that which emerged from our extension of the pyramid.

The pyramid framework prompted us to ask a series of questions – which are standardised here in Table 3 – to help assess the OER readiness at these institutions. The answers allowed us to generate OER Readiness Tables (Table 4) showing which factors acted as obstacles or opportunities to OER activity.

<table>
<thead>
<tr>
<th>Factors</th>
<th>Questions for potential OER users</th>
<th>Questions for potential OER creators</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volition</td>
<td>Do you have any desire to use OER?</td>
<td>Do you have any desire to create and share your teaching materials as OER?</td>
</tr>
<tr>
<td>Availability</td>
<td>Have you found OER online – of acceptable relevance, utility and quality – that you can use?</td>
<td>Do you hold copyright over teaching materials – of necessary relevance and quality – that you could license and share as OER?</td>
</tr>
<tr>
<td>Capacity</td>
<td>Do you know how and where to search for and identify OER? Do you know how the different CC licenses impact the ways in which you can use an OER?</td>
<td>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?</td>
</tr>
<tr>
<td>Awareness</td>
<td>Do you have any knowledge of or experience with OER? Do you understand how Creative Commons (CC) licenses differentiate OER from traditionally copyrighted materials?</td>
<td>Do you have any knowledge of or experience with OER? Do you understand how Creative Commons (CC) licenses differentiate OER from traditionally copyrighted materials?</td>
</tr>
<tr>
<td>Permission</td>
<td>Do you have permission (from your curriculum committee, etc.) to use OER for teaching? Does the desired OER allow you use it in your specific context (e.g. no CC-ND licenses on items that will be sold as course material)?</td>
<td>Do you possess copyright over teaching materials that have been developed at your institution?</td>
</tr>
<tr>
<td>Access</td>
<td>Do you have (stable) electricity provision? Do you have (stable) internet connectivity? Do you have the necessary computer hardware for OER use?</td>
<td>Do you have (stable) electricity provision? Do you have (stable) internet connectivity? Do you have the necessary computer hardware for OER creation?</td>
</tr>
</tbody>
</table>
With the answers to the above questions in hand, we were able to 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).

Based on our interviews with the research respondents, our reading of relevant institutional policies, and our engagement with secondary literature and online news articles concerning these factors at each HEI, we differentiated between five levels of readiness per factor corresponding with a red-to-green colour gradation: red being very low, orange being low, yellow being medium, dull green being high and bright green being very high. This was a subjective determination on our part, involving deduction, comparison and verification (by institutional experts after the fact).

Table 4 shows an example of one of the OER readiness tables that was generated from our research. It reveals the institutions’ readiness levels “if lecturers are the agents of OER creation”. (As we will see in the findings, if we change the agent of analysis (individual or institution), or the adoption factor under assessment (OER use or creation), then different tables result, e.g. Table 5).

Table 4 reveals that, while UCT is “OER ready” for lecturers to create OER, because all of the factors are aligned to allow lecturers to create OER, UFH struggles with multiple challenges — especially permission (lecturers do not have copyright over their teaching materials) and awareness — and UNISA is relatively OER ready, except for the key issue that lecturers there also do not have copyright over their teaching materials (and thus would not be able to legally share them as OER).

Thus, at a glance, the table allows for a quick identification of where the opportunities and obstacles lie for whether lecturers at an institution can create OER. This heuristic is useful for comparative purposes, but also advocacy purposes, allowing institutional stakeholders to see where potential OER-related interventions should focus.
A Differentiating Lens: The Institutional Culture approach

As we engaged with respondents from the three institutions, we noticed that they described the values, ambitions, practices and histories of their institutions in quite different ways. These descriptions did not necessarily relate to OER, but provided glimpses into the social and cultural world in which the lecturers operated and would potentially deal with questions regarding OER. We therefore drew on the literature concerning institutional culture (Bergquist & Pawlak, 2008; McNay, 1995) to help us delineate between the various governance, policy and social traditions at play at these universities. We found that this literature provided a useful set of terms and concepts allowing us to describe and analyse the workings of these institutions as they relate to OER.

We employed "institutional culture" as a broad descriptive concept to help differentiate between these 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.) elements. How these three variables combined at any institution helped us determine the kind of institutional culture that predominated there, allowing us to ask how OER-related activity might proceed.

It also allowed us to understand how these different institutional cultures shaped each university’s relationship with the six OER adoption factors, suggesting potential approaches to address associated challenges. Based on this, three institutional culture types were identified as being relevant for the universities: collegial, bureaucratic, and managerial (Cox & Trotter, 2016).

We determined that UCT had a collegial institutional culture, defined by a decentralised power distribution and high levels of individual autonomy (Czerniewicz & Brown, 2009; Trotter et al., 2014), which empowers lecturers to act on their own volition regarding OER as they hold copyright over their teaching materials (UCT, 2011). The management promotes this activity through technical, financial and policy support for the lecturers, but does not seek to dictate engagement (UCT, 2014). This determination was based not only on personal experience and conversations at the university (where we are based), but also the readings cited above, an analysis of UCT’s relevant policies and the opinions provided by our interviewees concerning the way that power, policy and implementation work at the institution.

Using a similar methodology at UFH (though lacking any corroborating secondary literature), we determined that UFH had a bureaucratic institutional culture, defined by a top down power structure where policies are abundant, but only loosely implemented (according to the interviewees). This rendered lecturers unclear about how to proceed with OER adoption, especially since they did not hold copyright over their teaching materials (UFH, 2010). In addition, the management had revealed no plans to share its intellectual property – the lecturers’ teaching materials – openly as OER.

UNISA was designated as having a managerial institutional culture (Chetty & Louw, 2012), defined by a top down power structure where policies are carefully elaborated and tightly implemented. This privileges managers’ agency regarding OER creation over lecturers’. The management had both the permission (UNISA, 2012) and volition to engage in OER adoption, though it had not yet become clear whether UNISA would actually implement its OER Strategy (UNISA, 2014) as key open advocates had moved into different roles at the university (where they might have less influence over OER decision-making) or moved to other institutions after the completion of our research.

While these various culture types did not predict any kind of preference for or hostility towards OER adoption, they did influence how lecturers thought about their own OER volition. Figure 2 shows the final volition factor of the OER Adoption Pyramid. It shows that lecturers (and managers/ institutions) are influenced by the personal values of the individual educators, the institutional support mechanisms (financial, technical or policy-based) that may or not be present, and the social norms and expectations of the departments and disciplines they work in.
These three variables shape volition in a myriad of ways, often idiosyncratically, depending on the individual involved. However, the type of institutional culture that predominates at an HEI tends to privilege one of the three variables more than the other, due to the way that power, governance and policy operate there, as we will see in the Findings below.

**Findings**

We found that the OER Adoption Pyramid framework, the OER Readiness Tables heuristic and the Institutional Culture lens offered a useful way to approach the data that we were collecting on OER adoption at South African HEIs. They even changed the way that we went about collecting data, helping us refine our methodology as we went along.

Initially the OER Adoption Pyramid was used as an analytical framework by itself, but we quickly saw that we could extend the comparative potential of our analyses through the OER Readiness Tables, which emerged from the pyramid framework and is constituted by the data and analyses coming from the institutional investigations. Together, we believe that they offer a powerful mechanism for both analysing and visualising the results of a multi-sited OER adoption analysis.

**Institutional OER Readiness**

Table 5 shows how these two frameworks work together to create a clean, intuitive illustration of OER readiness at our three research sites. The table actually comprises three different tables that
compare OER readiness at the three HEIs based on whether lecturers are considered the agents of OER use, whether lecturers are considered the agents of OER creation, or whether the institution is considered the agent of OER creation. (There is no fourth table for whether an institution is considered the agent of OER use, as this is a rare possibility in general, and not applicable for the institutions we engaged.)

Table 5. OER Readiness Tables – with comparison based on different agents of analysis

<table>
<thead>
<tr>
<th>Factor</th>
<th>lecturers as OER users</th>
<th>lecturers as OER creators</th>
<th>institution as OER creators</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>UCT</td>
<td>UFH</td>
<td>UNISA</td>
</tr>
<tr>
<td>Volition</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Availability</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Capacity</td>
<td></td>
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<tr>
<td>Awareness</td>
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</tr>
<tr>
<td>Permission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Access</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Key: Level of OER readiness
- very low
- low
- medium
- high
- very high

As is hopefully clear, the triptych of tables allows for a useful comparison between the institutions that clarifies their differences and opens up interesting points of engagement for OER researchers and advocates.

Thus, according to Table 5, UCT can be considered “OER ready” if lecturers are potential users or creators, but not if the institution is a creator. This is due to the fact that UCT has reverted copyright over lecturers’ teaching materials to the lecturers themselves, thus denying itself legal permission to share those materials, and revealing its lack of volition to do so. By contrast, UFH is almost OER ready if lecturers are users, but not if they are creators, and not if the institution is either. Lastly, UNISA is moderately OER ready if lecturers are users, not ready if they are creators, but quite ready if the institution is the creator. (This analysis here is just to illustrate the value of the OER Readiness Tables; the data and arguments are substantiated elsewhere (Cox & Trotter, in press).)

Institutional Culture and OER Sustainability

However, if we go further and incorporate the insights gained from the institutional culture lens that we applied during our research process, the resulting analysis becomes more nuanced, helping to understand current OER adoption realities at the HEIs, and allows for sharper speculation about future OER activities based on the dynamics inherent in these differing institutional culture paradigms.
Thus, with UCT’s collegial institutional culture, 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 potential challenge for sustained adoption practices.

With its bureaucratic institutional culture, UFH 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 are aware of OER at UFH. 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, the management has both the permission and volition to engage in OER adoption activity. They 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.

Institutional Culture and Volition

While institutional culture does not rate as a “factor” in our analytical framework (i.e. no particular type of culture is essential for some level of OER activity, in the way that access and permission are), it has a powerful effect on what type of IP permissions are likely in place at the institution and which variable – personal, institutional or social – shapes lecturers’ volition to adopt OER. That is, our research (Cox & Trotter, in press) suggested that there was a relationship between the type of institutional culture that predominated at an HEI and the predominant source of volition that would motivate lecturers to engage with OER (Figure 3). (That being said, given the small sample size of research respondents, the following argument is offered tentatively; and it would benefit from further research.)
Thus, at UCT with its collegial institutional culture, lecturers revealed that their personal values were the most important element driving their actual or potential engagement with OER. Their values, their teaching philosophies and their beliefs surrounding open education were the key to their behaviour regarding OER. They discounted the role that institutional policies played in motivating their OER-related behaviour and claimed that their personal desires were more important than social norms for understanding their decisions.

At UFH, with its bureaucratic institutional culture, lecturers revealed that they felt relatively disempowered at a personal level, a point reinforced by their lack of permission to create and share their teaching materials. Yet, due to the institution’s relative lack of awareness concerning OER, and the fact that it had not developed any policy or strategy concerning OER, they did not find the institution to be a highly motivating force for OER-related activities. Indeed, the opposite was the case for our respondents. Thus they tended to claim that they looked to their academic peers in their departments and disciplines for guidance on what pedagogical innovations – such as OER – to incorporate into their teaching practices. They suggested that if there were a “critical mass” of adopters by their colleagues, they would feel more interested to join in. Essentially, due to the perceived lack of managerial guidance on these matters, they looked to their peers for signals on what was worthwhile to engage in pedagogically. Additionally, the critical mass of activity would also give them a form of cover in case the administration ever questioned why they were engaged in a type of activity that had not been officially sanctioned.

At UNISA, with its managerial institutional culture, lecturers stated that they relied on the management to craft clear, coherent policies to guide their actions regarding OER. If such a
policy were established, then they would know exactly what was permitted and how to proceed. Considering that the university had only drafted an OER “strategy” (UNISA, 2014) – of which none of our respondents had ever heard – and not a “policy” (which would have greater institutional force and backing), respondents did not feel that they could act on their personal desires regarding OER, nor could they draw on social norms to overcome or sidestep the institution’s desires. They wanted the management to drive this as they were worried about making mistakes with copyright and potentially embarrassing themselves or the institution – or even worse, bringing a lawsuit upon themselves or UNISA for copyright infringement. Thus the institution’s (i.e. the management’s) volition was the key for motivating OER adoption at this HEI.

Discussion

While the growing number of studies on OER adoption continue to add greater understanding to OER practices or potential in diverse environments, there is some utility in having a broad, analytical framework that allows for multi-site comparisons. We believe that the OER Adoption Pyramid fills this role well and would offer other researchers a useful framework for assessing OER activities in their particular research sites.

By focusing narrowly on only those factors that are absolutely necessary for OER adoption – access, permission, awareness, capacity, availability and volition – the pyramid provides for the type of comparability between institutions that is otherwise lost if simultaneously focusing on both factors (which determine whether OER adoption can proceed) and variables (which determine how OER adoption might proceed), as these are categorically different in their influence on OER activity. Other studies typically fail to make this distinction, combining them into lists of “barriers” or “enablers” which, analytically speaking, preclude opportunities for careful and consistent comparison with multiple sites, or even with other studies.

For instance, in our research, the OER Adoption Pyramid enabled the identification of the underlying factors that were preventing the adoption of OER at a structural level at UFH and UNISA. It also highlighted that at UCT, where all of the factors are in place for lecturers to act, it was the final factor – volition – that was key to whether lecturers would adopt OER or not.

The OER Readiness Tables, which emerged from the pyramid, can give greater analytical and comparative purchase to multi-sited OER studies. They can help clarify where the real issues are at different institutions, in part because the realities of one institution may reveal how unique or different it is from others. Using a simple five colour profile (based on gradations between red and green), the tables are not only of value for researchers, but for advocates hoping to promote some type of OER-related intervention at a given site. By presenting the information in this fashion, institutional stakeholders should have no difficulty understanding where the key issues reside for potential OER activity.

Refining this even further, the “institutional culture” lens provides greater nuance in institutional analyses. This approach calls for an appreciation for how a prevailing cultural system can shape the direction of OER-related decision-making, even if that system is technically agnostic as to OER itself. 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. However, we did find that it had a powerful influence on how OER decisions were handled at an institution, especially with regards to the factors of permission (who possesses copyright of teaching materials) and volition (whether personal, institutional or social forces matter most for OER motivation).
Conclusion

We believe this research – and these analytical frameworks and concepts – will have value for OER scholars interested in researching OER adoption, as well as for institutions interested in promoting it. While these frameworks were developed and applied in a Global South setting, they may also be applied to institutional settings in the Global North as well. The assumption, until proven otherwise with further use, testing and analysis, is that these frameworks are generically useful and valid. It is hoped that, in the spirit of Openness, these frameworks will indeed be used, re-used, adapted to local contexts and distributed in order to increase our knowledge of the complex phenomenon of OER adoption.

Acknowledgements

We would like to thank Cheryl-Hodgkinson-Williams, our Principal Investigator in the Research on Open Educational Resources for Development (ROER4D) programme, as well as the anonymous Open Praxis reviewers, for giving us valuable feedback on this paper. We would also like to thank the International Development Research Centre (IDRC) for the generous funding that supported the research that this paper is based upon.

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th-10th 2017 (http://conference.oecd.org/2017), with whom Open Praxis established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in Open Praxis.

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Differentiation in Access to, and the Use and Sharing of (Open) Educational Resources among Students and Lecturers at Kenyan Universities

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Abstract
In order to obtain a fair ‘OER picture’ for the Global South a large-scale study has been carried out for a series of countries, including Kenya. In this paper we report on the Kenya study, run at four universities that have been selected with randomly sampled students and lecturers. Empirical data have been generated by the use of a student and a lecturer questionnaire to which in total 798 students and 43 lecturers have responded. Selected from the very rich source two major outcomes are: (i) there is a significant digital differentiation among lecturers and students at urban versus rural universities in terms of their proficiency and internet accessibility; and (ii) the awareness and appreciation of the OER concept and open licensing is low but from the actual processing by respondents of educational resources (not necessarily open) a ‘preparedness for openness’ can be derived that promises well for the future.

Keywords: Educational Resources; Open Educational Resources; OER; ICT; differentiation; access; sharing; Kenyan universities; students; lecturers

Introduction
In the African traditional setting, the elderly men and women share their practical wisdom and indigenous knowledge with the younger generation for purposes of continuity and cultural enrichment. This exercise by nature is free and open, with no exchange of payment for services (Mosha, 2000). This culture of open sharing is virtually absent in modern forms of education in Africa. Institutional education, largely introduced in Africa by the Global North, generally overruled the principle of free sharing of knowledge. However, since the last two decades of far-reaching digitization of knowledge and content in a broad sense, having led to Open Access of knowledge and to Open Educational Resources (OER), it seems plausible to restore the traditional African principle of free and open sharing.

According to UNESCO/COL (2012), OER are, “teaching, learning and research materials in any medium, digital or otherwise, that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions.” Because of this ‘open’ view on educational resources, OER bear the huge potential of a simultaneous improvement on the access to education and the quality as well as the efficiency of...
education (Daniel, 2009; 2010, 2013). This is an attractive perspective to all countries around the globe, but it holds a fortiori for countries in the Global South.

Since we are witnessing a lot of confusion and claims regarding what ‘open’ means, Wiley has recently restated clearly that ‘open’ is not identical to ‘free’ (of charge) access. ‘Open’ stands for free access indeed plus, however, some formal rights and permissions to be granted to the users. These can be adopted according to an ‘open licensing’ scheme as offered, for example, by Creative Commons (Wiley, 2016). In Wiley’s terminology, ‘open licensing’ provides users with free and perpetual permission to engage in five ‘R’ activities: reuse, revise, remix, redistribute, later completed with retain (Wiley, 2007, 2014). The relevance is evident: this really goes beyond providers just giving access to their online content. And, it offers a fair regulation of the ‘jungle’ where people wrongfully feel free to take from the Internet whatever they want. With this notion we will refer to (O)ER rather than OER except when its meaning is evident from the context. This is leaving space for considering Educational Resources in general, not being ‘Open’, which is useful in its own right.

The worldwide OER collection, although in principle giving online access for free to all, may not be equally accessible to all independent of location on the globe or in a country. This situation is technically referred to as OER differentiation which represents the gap between the centre and the periphery, between the literate and the illiterate, between the urban and the rural, between the haves and the have-nots, in their opportunities and capabilities to access and use OER. In this paper (O)ER differentiation is more precisely defined as the existing inequalities in the use of (O)ER in society, that involves not only unequal access to (O)ER, but goes further to include the inequalities that exist between groups of people in their ability and capability to actually create, use or re-use, repurpose, and holistically utilize (O)ER for individual and common good (ROER4D, 2017).

There is a need to get a better picture of whether and how introductions of OER have been aligned with a reduction of the (O)ER differentiation, especially in Sub-Saharan Africa. Underlying (O)ER differentiation there is digital differentiation (often called the digital divide) which concerns physical access to new ICT technologies (like internet). Accordingly we can allocate different levels of digital proficiency and of (O)ER proficiency to the key actors in education, students and lecturers. In this paper the focus is on Kenya as a country in the Global South, where we could expect a digital and (O)ER differentiation pattern which will deviate from countries in the Global North. We report on a quantitative survey study among Kenyan university students and lecturers. In the following section the context is described in relation to the study being part of a bigger project and with respect to the university landscape and the state of affairs in ICT in education and in OER in Kenya. Next, the research questions are presented, and the methodology is described. The main body of the paper is a comprehensive section containing per research question the major results and findings. The paper closes with the leading conclusions and recommendations.

**Context**

The study is part of a larger project on digital and (O)ER differentiation in three regions around the world: Sub-Saharan Africa (including also Ghana and South Africa), South America (with Brazil, Chile, and Colombia), and Southeast Asia (represented by India, Indonesia, and Malaysia) (ROER4D, 2017). This cross-regional and comparative survey project in turn is part of an overarching research initiative called ROER4D, which stands for “Research on Open Educational Resources for Development” (Hodgkinson-Williams, 2013; ROER4D, 2017).
Kenya has a population of around 47.4 million people occupying a total land area of 569,295 square kilometers. 26% of the total population is urban. After independence, Buchmann (1999) points out, Kenyans have expressed deeper faith and high hopes in education. The government promoted education as one of the key issues to social, political and economic development. Rikers (2017) underlines that successes mainly apply to the primary school level, while moreover access still requires full attention.

Kenya has 22 public universities, 14 chartered private universities, and 13 universities with a Letter of Interim Authority (4ICU web ranking, 2016). Most Kenyan universities are to some extent involved in innovative learning programs that seek to take advantage of the use of ICT (Adala, 2016). A fair number offers some form of open, distance and e-learning. Examples include Africa Nazarene University (Ooko & Mays, 2015), Egerton University (Adala, 2016), Kenyatta University (KU, 2014), and University of Nairobi. No doubt that such models will increase accessibility to tertiary level education, but they also call for improved IT literacy and enhanced Internet connectivity throughout the country.

In 2006 the first ever Kenya National ICT policy was presented. Its mission was to improve the livelihoods of Kenyans by ensuring the availability of accessible, efficient, reliable and affordable ICT services (MIC, 2006; ICT Authority, 2014). The promulgation of the 2010 Kenya constitution, the government’s blueprint for further development and its Vision 2030 (2007) give rise to significant implications for the role of ICT in Kenyan society (Adala, 2016). The ambitions in Vision 2030 are “Strengthening the foundation for a knowledge-based economy” (ICT Authority, 2014, p. 12) and “Kenya as an ICT hub and globally competitive digital economy” (ibid, p. 39). The Ministry of Education, Science and Technology describes the possibilities that open, distance and e-learning can offer to expand access to, quality of, and equity in education, as well as aiding the achievement of the constitution of Kenya and Vision 2030 (MOEST, 2012). These new modes of learning potentially are viable alternatives to respond to the challenges of nomadic populations, migrations, limited opportunities in mainstream education, et cetera. To this end the government plans to adopt open and distance learning supported by an overall ODL policy with the intention to mainstream ODL in the educational system, to establish partnerships with national and international ODL providers, and to enhance the development and dissemination of educational content at curriculum development centres (ibid, p. 63).

Hatakka (2009) has noted that in developing countries open content is not widely used. We currently see, however, some interesting developments to further open up education, also in Kenya. In collaboration with UNESCO and the Commonwealth of Learning, for example, Kenya has held workshops on OER across the country; see, for instance, UNESCO (2013). And Kenya organized a National Implementation Strategy Workshop on OER guided by UNESCO’s ICT Competency Framework for Teachers Toolkit. Nevertheless, OER is still in its infancy in Kenya and it would require substantial additional effort from different stakeholders, including the government, to further mature the OER movement in the country.

Methodology

These are the research questions (RQs):

1. What is the state of connectivity and digital proficiency among lecturers and students?
2. What kind and level of use, re-use, creation, and sharing of educational resources (ER) is common among lecturers and students (but for the latter not including re-use and creation)?
3 What is the level of awareness of licensing related to open educational resources (OER) among lecturers and students?

4 How do lecturers and students perceive the value of openness in educational resources (ER), its implementation opportunities, and its institutional context (the latter item only for the lecturers)?

Note that RQ1 relates to digital differentiation, RQ2 to ER differentiation, and RQ3 and RQ4 to OER differentiation.

In order to test both questionnaires before their large-scale use we have run a pilot. It became evident that both the student and lecturer populations are generally not very knowledgeable nor understanding of the OER concept. It turned out that even with the explanation of OER in the information part of the questionnaire, some responses were overall incontestably inconsistent. This could only be understood with our assumption that respondents had not really internalized the OER concept, in particular the associated open licensing approach. Which - one could say - was eclipsing their perceptions and would generate an unintended validity failure in the results for the questions concerned. We therefore decided to change the reference from OER to ER in the questions connected to this failure. As a consequence, we had to slightly adapt the wording of our original research questions, in which we had not (yet) been anticipating this possible ‘perception eclipse’. This has resulted in the set of RQs presented above. RQ2, for example, shows the difference by using the term ER instead of OER. And we rephrased RQ3 and RQ4 a little so that we could or simply had to stick to OER, whatever the results would be. The phenomenon described here is not to blame on the respondents being from Sub-Saharan Africa. And our survey certainly is not the only OER study which is bothered by the perception eclipse. It can easily happen with a concept like OER which in its abstraction appears to be difficult to fully grasp. We have noted it explicitly, and have taken measures to circumvent its consequences as much as possible.

The lecturers’ questionnaire includes 30 items, the students’ version 26. Both questionnaires contain 4 items on RQ1 and 2 items on RQ3. For RQ2 the lecturers’ version addresses 5 items, the students’ version 3. And, RQ4 is being covered by 7 items (for the lecturers), and by 6 items (for the students). The remaining items (12, respectively 11) are either demographic or not relevant for this study. The items in the questionnaires offer multiple-choice answers from which the respondents should tick the relevant ones. Some of the questions can have more than one answer.

The research has an exploratory character and is based on the quantitative descriptive data provided by the two questionnaires. There is no qualitative part such as additional in-depth interviews. The sampled lecturers and students were invited to fill in the questionnaires available on SurveyMonkey. Some used the online SurveyMonkey, but the majority used the printed version of the questionnaires, which were later keyed into the SurveyMonkey by the local coordinators at the participating universities. Respondents were offered incentives in the form of flash disks.

Data have been collected from four universities in Kenya which were purposively selected. They are representing the overall Kenyan university variety. First of all this applies to the classification as private or public, where the public ones are funded by the government. Secondly, there is equal representation of the universities in urban areas - in this case basically being located in Nairobi - and in rural areas. These are the ones:

- [private, urban] Tangaza University College
- [public, urban] Jomo Kenyatta University of Agriculture and Technology
- [public, rural] Maseno University
- [private, rural] Great Lakes University.
The second level of sampling consisted in collating the course modules being delivered in a particular semester in each of the four universities. Out of this list, 30 modules for each university were randomised. From the randomised set, the local coordinators at the four participating universities were to identify at least 10 modules with more than 30 students, while its lecturers were willing to cooperate with the data collection. The aim was to sample at least 200 students and 10 lecturers from each university. The participants were invited based on the random selection. The sample contains 43 lecturers (60% male, 40% female), and 798 students (54% male, 46% female). The male/female distribution is representative both for the lecturers and the students in Kenya (Wainaina, 2011), but note the interesting exception at ‘Tangaza’ where the majority of the students is female: 62% (which is a representative share). This is because Tangaza University’s mission is to promote women’s education and the majority of the students are sponsored by the Catholic Church.

The average age of the lecturers is 44.5, the youngest being 34 and the oldest 67 years old, which is a pretty common picture. For the students the average age is 24.5 with a range from 18 to 67 years old. Again, ‘Tangaza’ is an exception with a large share of around half of the students being older than 29 (which is representative for that university) Most of the lecturers (60%) have a moderate teaching experience, ranging from 4 to 10 years. Only a small fraction (5%) is very experienced (with more than 20 years). This represents the regular picture. In terms of the lecturers’ highest educational qualifications we count the quality you would like to see in a questionnaire like this: 12 Doctorates, 24 Masters, and 7 Bachelors. With respect to their current positions we observe an anticipated variety, most of them being a lecturer (20x), researcher (9), senior lecturer (7), or junior lecturer (7). There is also a broad spectrum in the areas of teaching among the lecturers which naturally is reflected in the students’ areas of study.

Results and findings

The two questionnaires have generated an abundance of data and information. Because of space limitations we can only report on a small fraction of the outcomes in this paper. In terms of differences we have decided to focus on ‘urban’ versus ‘rural’, not on ‘public’ versus ‘private’. The discussion on the results presented is arranged along the four research questions.

**RQ1: What is the state of connectivity and digital proficiency among lecturers and students?**

Figures 1a and 1b show how the students at rural and urban universities score their digital proficiency. What one would expect is indeed that the ‘advanced’ share is larger at urban than at rural universities: 16 versus 2%. But it seems a bit surprising that this also holds for the ‘basic’ share: 52 versus 20%, and that - as a consequence - the ‘intermediate’ share is much larger at the rural universities: 78 versus 32%. An explanation for this remarkable scores could be that students at urban universities are more modest about their digital skills. But it could also be that the rural-based students are more serious on the Kenyan education system requirement that all newly enrolled university students should have basic computer skills (KICD, 2016; MICT, 2016).

Figure 1a: Digital proficiency rural-based students

Figure 1b: Digital proficiency urban-based students
In Figures 2a and 2b we can see that the majority of the lecturers at both urban and rural universities score their digital proficiency at an intermediate level. A big difference, however, is that none of the rural university lecturers rate themselves at an advanced level while their urban-based colleagues score 28% to be advanced. From Figures 1 and 2 it can be concluded that the lecturers at the urban universities rate themselves more digitally proficient than the students, whereas at the rural universities this is the opposite. Generally, we can observe that a significant part of the lecturers do not yet have the required ICT competencies, which is a concern after ten years of implementing the National ICT Policy. This is in line with official reporting (ICT Authority, 2014).

Next we can conclude from Figures 3a and 3b that both students and lecturers score highest for the location where they do access the Internet at their school, university, or workplace. The
lower scores show a slightly different pattern. For example, ‘Home’ is number 2 in the ranking of the lecturers but a clearly lower number 5 for the students. Conversely, ‘Family member or friend’s home’ is ranked number 3 for the students but not more than number 6 for the lecturers. The ‘Public library’ is in the top-3 for both students and lecturers. Most prominent for the students is that for almost 90% they rely on public services, low rate commercial public provision, or family/friends. This underlines that as a result of the poverty in Kenya, many families cannot afford internet connectivity at home, and hence the children rely on what is elsewhere being provided for free or relatively cheap (Aguyo, 2010).

Figure 3a: Student’s location of internet access

![Student's location of Internet access chart]

Figure 3b: Lecturer’s location of internet access

![Lecturer's location of Internet access chart]
For the devices used, Figures 4a and 4b show slightly different patterns for students and lecturers in their top-2 preferences. For the lecturers numbers 1 and 2 are a laptop and a desktop computer, for the students this is just the other way around. Upon closer inspection this difference in students’ preferences appears to be due to the rural-based students who by 60% are in favour of a desktop computer, with only 23% for a laptop (plus 17% for mobile and close to 0% for a tablet). In the urban universities the popularity among students of a desktop computer is down to 26%, with a higher 31% for a laptop (plus 26% for mobile and 16% for a tablet). As a result the pattern for the urban students closely resembles the lecturer’s pattern. The very high score for desktop computers among rural-based students suggests that they are going for the cheaper option in their use of desktop computers at their educational institutions (see also Laaria, 2013; Aguyo, 2010).
Figures 5a/5b and 6a/6b address the level of satisfaction that students and lecturers express to have with the Internet connection where they most frequently access it. This relates to three aspects: cost, speed, and stability. We see very diverse pictures when we compare ‘rural’ with ‘urban’. For both students and lecturers the dissatisfaction at the rural universities is very pronounced (for all three: cost, speed, and stability) while at the urban universities the overall appreciation is pretty positive. It can be concluded that there is a substantial digital divide or differentiation between rural and urban universities, in terms of Internet access and accessibility. This very unfortunate inequality is a serious challenge for Kenya.
Differentiation in Access to, and the Use and Sharing of (Open) Educational Resources among Students and Lecturers at Kenyan Universities

Figure 6a: Internet connection rural-based lecturers

Figure 6b: Internet connection urban-based lecturers
RQ2: **What kind and level of use, re-use, creation, and sharing of educational resources (ER) is common among lecturers and students (but for the latter not including re-use and creation)?**

Let us consider here the processing and behaviour of both lecturers and students with respect to different categories of educational resources. Indeed we start with surveying their actual practice rather than getting directly to the OER proposition, on the argument of the perception eclipse discussed before.

**Figure 7a: Spectrum of processing of educational resources (ER) by the lecturers**

**Figure 7b: Spectrum of processing of educational resources (ER) by the students**

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Figures 7a and 7b show interesting patterns for the lecturers and the students in their processing of four ER categories:

(a) Office documents (like Word, Powerpoint, Excel) and PDF
(b) Images, audio, video
(c) e-Books, lecture notes, quizzes, tutorials
(d) Textbooks, whole courses, MOOCs, data sets.

In the spectrum of five different modes of processing the three in the middle are the most relevant for this paper, representing respectively the 'use' (mode 2), 're-use' (mode 3), and 'sharing' (mode 4) of ER, referred to in the above research questions. In their response both lecturers and students seem to show an attitude and behaviour of embracing those key attributes of openness in educational resources. A measure for this can be found in the sum of the scores for modes 2, 3, and 4, averaged over the four ER categories, which amounts to:

- for the lecturers: 50% as compared to 38% for mode 1 ('create') and 12% for mode 5 (—)
- for the students: 49% as compared to 33% for mode 1 ('create') and 18% for mode 5 (—).

This 'preparedness for openness' may apply merely on pragmatic grounds and without a solid understanding of the OER concept, but it could anyway comprehend a promise towards real appreciation of what OER and open licensing can offer. Figures 7a and 7b provide more specific information as well, such as the observation that for the lecturers mode 1 ('create') has the largest share of all modes for each of the four ER categories. This holds for the students as well, except in case of ER category (d), where - quite understandable - the 'no activity' mode 5 scores higher. It is - by the way - remarkable indeed that the 'create' mode 1 overall has such a high score also for the students. This can only be explained on the assumption that students consider their assignments, reports, essays, project outcomes and the like as contributions in terms of educational resources.

For the lecturers we show their response to the question from what sources they would feel free to use resources for their teaching in Figure 8. At first glance the picture seems to present overall relatively responsible lecturers with a top-3 of preferences 'on the right side' in terms of adopting regulations. The three options 'fair use' (23%), 'acknowledgement' (20%), and 'open licensing' (16%) add up to 59%. This, however, still leaves 41% in an actually unregulated, shady area. Moreover, we can have serious doubt on the validity of the top-3 response, realizing the lack of knowledge and understanding of the option of 'open licensing' which actually also might apply to the other two options. So, it's fair to say that most of the lecturers seem to take too much liberty in their use of others' ER.
Table 1 shows the top-5 (out of 13 options) of activities that lecturers say to undertake if they use educational resources from others. We see a broad variety of use. In all cases except for the last one in the top-5 (which is plain use) three of the five ‘Rs’ in David Wiley’s terminology (reuse, revise, and remix - referred to in the Introduction section) are typical for the lecturer’s activities as indicated. Again, what it shows is that the lecturer’s operational behaviour is pretty close to the open philosophy.

Table 1: Lecturer’s activities undertaken when using educational resources from others

<table>
<thead>
<tr>
<th>USE of ER: lecturer’s activities (top-5 in percentages)</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Summarize the essential ideas</td>
<td>16</td>
</tr>
<tr>
<td>Integrate the content with other content in order to develop a module or new unit</td>
<td>13</td>
</tr>
<tr>
<td>Change the content or add locally relevant information, examples and scenarios</td>
<td>13</td>
</tr>
<tr>
<td>Transform the content by adding an interpretation, reflection or practice</td>
<td>12</td>
</tr>
<tr>
<td>Copy the content and use it unaltered</td>
<td>9</td>
</tr>
</tbody>
</table>

Similarly, in Table 2 the top-5 (out of 11 options) is presented for activities that students say to undertake when using educational resources from others. A distinction is made between students from rural and urban universities where we see differences. Number 1 is not the same for the two categories, while the rural-based students - deviating from their urban-based colleagues - score two rather basic activities at numbers 3 and 4. Again, except for the latter two, all indicated activities can be qualified as associated with the open philosophy. Note that all lecturer’s top-5 activities from Table 1 return in the list of activities for the students in Table 2, albeit not necessarily in the same positions.
Similar results for the sharing and creation of ER are not presented here because of space limitations. There appears to be a strong engagement with sharing, even though this may not be based on full awareness of the fundamental sharing principle.

**RQ3:** What is the level of awareness of licensing related to open educational resources (OER) among lecturers and students?

In Figures 9a and 9b responses are collected to the question whether lecturers, respectively students have used any licenses to express the rights others have to use the materials they have processed (created, edited, modified, or combined).

**Table 2: Student’s activities undertaken when using educational resources from others**

<table>
<thead>
<tr>
<th>USE of ER: student’s activities (top-5 in percentages)</th>
<th>Rural</th>
<th>Urban</th>
</tr>
</thead>
<tbody>
<tr>
<td>Summarize the essential ideas</td>
<td>—</td>
<td>17</td>
</tr>
<tr>
<td>Transform the content by adding an interpretation, reflection or practice</td>
<td>27</td>
<td>14</td>
</tr>
<tr>
<td>Change the content or add locally relevant information, examples and scenarios</td>
<td>24</td>
<td>12</td>
</tr>
<tr>
<td>Copy the content and use it unaltered</td>
<td>11</td>
<td>—</td>
</tr>
<tr>
<td>Convert the content from one form to another</td>
<td>10</td>
<td>—</td>
</tr>
<tr>
<td>Implement changes to update the resource</td>
<td>—</td>
<td>12</td>
</tr>
<tr>
<td>Integrate the content with other content in order to develop a module or new unit</td>
<td>9</td>
<td>11</td>
</tr>
</tbody>
</table>

**Figure 9a: Lecturer’s assignment of licenses**

<table>
<thead>
<tr>
<th>No</th>
<th>Other “open content license”</th>
<th>Creative Commons</th>
<th>Copyright</th>
<th>GNU GPL</th>
</tr>
</thead>
<tbody>
<tr>
<td>74,1%</td>
<td>3,4%</td>
<td>5,2%</td>
<td>12,1%</td>
<td>5,2%</td>
</tr>
</tbody>
</table>

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The dominant option in both figures is that no license is assigned: 74% for the lecturers, and 81% for the students. Traditional copyright assignment scores 12% (lecturers) and 12% (students), and various open licensing schemes rate in total 14% (lecturers) and 7% (students). Between rural and urban universities the differences are negligible.

The response to the reverse question, whether lecturers and students themselves have ever used OER that are available in the public domain or have an open license, shows a fair share with ‘Yes’, but yet about 60% of both lecturers and students responds with ‘No’ or ‘Don’t know’. We conclude that overall the awareness and appreciation of open licensing, let alone commitment to this approach, is not very high. More positively judged, however, it is not absent either, which may provide a fruitful basis to further embrace the open licensing policy.

**RQ4: How do lecturers and students perceive the value of openness in educational resources (ER), its implementation opportunities, and its institutional context (the latter item only for the lecturers)?**

Next we are addressing the OER concept per se, giving the response the deserved treatment but at the same time being cautious and in some cases even reserved in our conclusions when the results are raising doubts. One cause for this could be the perception eclipse that easily may have interfered with the response in this ‘getting-to-OER’ part of the survey. Another reason could be fatigue with the respondents when filling out the last couple of questions in the overall laborious questionnaire. And of course it could be a combination. We start in Table 3 with the top-4 (out of 6 options) of identified potential motivators for the use and reuse of ER which actually might be considered to represent a stimulating gate to convert to OER.

---

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Table 3: Potential motivators for the use and reuse of ER among lecturers and students

<table>
<thead>
<tr>
<th>Potential motivators for the use and reuse of ER (top-4) &gt; from ‘very unimportant’ to ‘very important’ &lt; (average on a 5 pt. Likert scale)</th>
<th>Lecturers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bringing down costs for students</td>
<td>4.7</td>
<td>4.4</td>
</tr>
<tr>
<td>Helping other educators/students</td>
<td>4.6</td>
<td>4.4</td>
</tr>
<tr>
<td>Bringing down costs for course development for the institution</td>
<td>4.6</td>
<td>4.2</td>
</tr>
<tr>
<td>Knowing that other educators/students may use my materials, improves the quality of my materials</td>
<td>4.6</td>
<td>4.2</td>
</tr>
</tbody>
</table>

The table shows a pretty even picture with all four motivators rated close to ‘very important’ (4.6-4.7) by the lecturers and no more than 0.2-0.4 less by the students. The other two motivators, regarding ‘normal practice’ and ‘reputation’ (not shown), score lower. Table 4 is presenting the top-6 (out of 12 options) of potential barriers for the use and reuse of ER. Where the ER motivators can be viewed as stimuli for a conversion to OER, the ER barriers likewise can be inhibitors in a development process towards OER.

Table 4: Potential barriers for the use and reuse of ER among lecturers and students

<table>
<thead>
<tr>
<th>Potential barriers for the use and reuse of ER (top-6) &gt; from ‘not at all’ to ‘extremely’ &lt; (average on a 5 pt. Likert scale)</th>
<th>Lecturers</th>
<th>Students</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lack of access to the internet</td>
<td>3.6</td>
<td>3.7</td>
</tr>
<tr>
<td>Lack of time</td>
<td>3.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Lack of training</td>
<td>3.6</td>
<td>3.4</td>
</tr>
<tr>
<td>Lack of hardware</td>
<td>3.5</td>
<td>3.4</td>
</tr>
<tr>
<td>Lack of software</td>
<td>3.3</td>
<td>3.4</td>
</tr>
<tr>
<td>I worry about the quality of OER</td>
<td>3.3</td>
<td>3.4</td>
</tr>
</tbody>
</table>

This table shows substantially lower scores as compared to Table 3, around a full 1.0 for almost all entries. Almost all barriers are expressed in terms of ‘lack of …’, except for ‘quality worries’, and the two lowest scoring barriers: ‘no reward system’ and ‘no compensation’ (at 3.1, not shown).

Table 5 collects the top-5 (out of 10 statements about OER as applied to their educational institution) for which the lecturers indicate their level of agreement.
The top-3 in Table 10 has a score of 3.6, and even the bottom-5 (referring to ‘instructors attitudes’, ‘diversity’, ‘support services’, ‘quality assurance’, ‘credentialing’) is rating 3.2 or more. So all ratings are on the positive side. Clearly, any educational institution, be it in the Global South or in the Global North, would love such a relatively positive and optimistic picture among its lecturers. But we have serious doubts with respect to these outcomes. They seem to be really unrealistic and hard to believe. This goes back to our earlier warnings. We have no firm explanation for this relatively positive picture among the lecturers, but - again - it could be due to the perception eclipse or fatigue with the respondents, or even an expression of loyalty with their educational institution.

Finally we consider the lecturer’s and student’s intention to use OER in Figures 10a/b. Note that only those are included whose response is ‘Yes’ to the item of having used OER with an open license or in the public domain. Therefore the number of respondents is reduced, for the lecturers from 43 to a pretty low 18, and for the students from 798 to a still considerable 316. This limits the validity and reliability of the outcomes, in particular for the lecturers.

### Table 5: Lecturer’s opinions on OER in their educational institution

<table>
<thead>
<tr>
<th>Lecturer’s opinions on OER in their educational institution (top-5)</th>
<th>&gt; from ‘strongly disagree’ to ‘strongly agree’ (average on a 5 pt. Likert scale) &lt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Policies adopted by my institution support the use of OER</td>
<td>3.6</td>
</tr>
<tr>
<td>My institution has reliable infrastructure to store and preserve access to teaching and learning materials (OER)</td>
<td>3.6</td>
</tr>
<tr>
<td>The OER initiative in my institution provides equal access to educational materials to anyone</td>
<td>3.6</td>
</tr>
<tr>
<td>The OER initiative in my institution is able to sustain the maintenance through internal funding and/or external contributions</td>
<td>3.4</td>
</tr>
<tr>
<td>There are ways for handling and utilizing OER in my institution as the main or supplemental materials to support our courses</td>
<td>3.4</td>
</tr>
</tbody>
</table>

The top-3 in Table 10 has a score of 3.6, and even the bottom-5 (referring to ‘instructors attitudes’, ‘diversity’, ‘support services’, ‘quality assurance’, ‘credentialing’) is rating 3.2 or more. So all ratings are on the positive side. Clearly, any educational institution, be it in the Global South or in the Global North, would love such a relatively positive and optimistic picture among its lecturers. But we have serious doubts with respect to these outcomes. They seem to be really unrealistic and hard to believe. This goes back to our earlier warnings. We have no firm explanation for this relatively positive picture among the lecturers, but - again - it could be due to the perception eclipse or fatigue with the respondents, or even an expression of loyalty with their educational institution.

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### Figure 10a: Lecturer’s intention to use OER
Figures 10a and 10b show high scores, around 80–90% for ‘agree’ + ‘strongly agree’, by both lecturers and students for all four statements shown except for the most left one. That looks very promising, while the lower scores on ‘I prefer OER to traditional learning’ (37% for the lecturers and 58% for the students) do not really alter this positive perspective since that can easily be understood. For this issue the lecturer’s response is most relevant. Having underlined that with the low number of respondents (18) we can question the validity and reliability of these outcomes, and taking into account the reservations expressed before, we cannot do much better than say that if this picture would be representative it could spearhead the implementation of Kenya's Vision 2030.

Final reflections, conclusions, and recommendations

Kenya is a country on the move in the global developments with respect to online learning as well as towards opening up education through OER. The country faces the challenging confrontation between reality and practice versus ambitions and perspectives. Fighting poverty is still a high priority. And the divide between urban and rural areas is huge. As described in the Context section, education is considered to be a crucial driver for social, political and economic development. Educational innovation may well contribute to Kenya's mission, expressed in its 2006 National ICT policy and in Kenya’s Vision 2030. Online and open learning are viewed to be of high potential for Kenya in order to expand access to, quality of, and equity in education. There are promising initiatives to create a better ICT environment and infrastructure. For example, the lifting of duties on imported computers and related equipment has resulted in many more Internet cafes in rural areas. Moreover, the initiation of digital innovation hubs in Kenya's 290 constituencies will ensure a much better distribution of ICT facilities aiming for free Wi-Fi in all regions across the country. But significant barriers remain, at least for the time being and in particular in the rural areas, in terms of cost of internet access, lack of or
interrupted electricity supply, dominance of English, low literacy levels, and a poor telephone and travelling infrastructure. Alongside providing an adequate ICT infrastructure, Kenya is also becoming more engaged in educational innovations as we see occurring worldwide in online and open learning. For developing countries the big challenge in the ‘ICT in education journey’ is to balance educational ambitions and perspectives with economic realities and opportunities. It makes a study like this - to our knowledge the first empirical OER study in Kenya on such a large scale - important since it can contribute to a better OER picture for Kenya.

Let us finally summarize the major conclusions and recommendations:

A. Because a significant part of the lecturers at Kenyan universities does not yet have the required ICT competencies as foreseen in the National ICT Policy, and because there is a significant digital proficiency differentiation among lecturers and students at urban and rural universities, the implementation of that National ICT Policy (which started in 2006) is at stake and needs a strong government boost.

B. The alarmingly substantial digital differentiation in terms of internet accessibility and the extremely low level of satisfaction with the internet connection at the rural universities as compared to the urban universities, puts a serious challenge on Kenya, in order to countrywide realize the ambition of the 2010 Kenyan constitution and Kenya’s Vision 2030 (that is to create new forms of open and online learning and to provide access to education for marginalized and hard-to-reach populations). Proper and persistent government initiatives are required to tackle this challenge and move from dream to reality.

C. The overall awareness and appreciation of open licensing, let alone commitment to this approach, is low and therefore a hindrance in the adoption of the OER philosophy. More positively judged, however, it is not absent either, which may provide a fruitful basis to further increase the lecturer’s, institutional and national awareness and understanding of OER and open licensing.

D. The ‘preparedness for openness’ that appears from this study by focusing on the processing and behaviour of respondents with respect to educational resources (ER) without explicitly referring to the open philosophy with OER and its sharing principle, may apply merely on pragmatic grounds, without a solid understanding of the OER concept and without bothering about proper licensing. But the result counts and makes a promise towards real appreciation of what OER and open licensing can offer on the condition that lecturers should become more aware that they generally take too much liberty in their use of resources for their teaching.

E. The potential motivator and barrier sets, formulated for ER and scored by both lecturers and students, also represent stimuli and inhibitors for furthering OER and can therefore be useful in the context of how to most effectively develop the OER approach in Kenya and its educational institutions.

F. This study shows a picture of strong intentions with respect to OER among lecturers (and students) and of positive lecturers’ judgments on their institutional support for OER. If that would be representative indeed, albeit all reservations that we have expressed, then that should be cherished by all stakeholders in education so that it could spearhead the implementation of Kenya’s Vision 2030.

G. The decision to change reference from OER to ER in collecting data on the actual processing and behaviour of respondents with respect to different ER categories rather than gathering their perceptions of the value of openness in ER, has worked out well. So our attempt to avoid the perception eclipse seems to have been pretty adequate. We call upon the OER research community not to hesitate to be equally explicit on cautioning with respect to the outcomes of similar empirical OER studies, in particular when a perception eclipse might apply.
Acknowledgements

The authors are grateful to Prof. Selvam Sahaya of Tangaza University College and Prof. Cheryl Hodgkinson-Williams of Cape Town University, South Africa, for their contributions. Thanks also go to Shelleemiah Otieno of Jomo Kenyatta University of Agriculture and Technology, Elly Omoro of Maseno University, and Felix Oduor of Great Lakes University for coordinating the collection of data in their universities. Finally, the statistical support from IDRC’s George Sciadas was very welcome indeed.

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th-10th 2017 (http://conference.oeconsortium.org/2017), with whom Open Praxis established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in Open Praxis.

Conflict of interest

The umbrella ROER4D project, which includes this Kenya study, has been funded by the International Development Research Centre (IDRC) in Canada. However, the funders were not involved in the actual designing of the study.

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A survey of the awareness, offering, and adoption of OERs and MOOCs in Japan

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Abstract
Awareness about Open Educational Resources (OERs) and the purposes for offering and adopting OERs and Massive Open Online Courses (MOOCs) were analyzed using a detailed survey of higher education across Japan, which was conducted in 2015. A comparison with a similar study conducted in 2013 revealed that awareness of OERs has increased slightly and the number of MOOCs offered has increased significantly in the intervening two years. The increase of offerings and adoption was low for OERs but high for MOOCs. OERs are used to improve the learning environment for students, while MOOCs aim to promote lifelong learning. Only one-fifth of the institutions surveyed in 2013 offered MOOCs or advanced their plans to offer them in 2015, and institutions that did offer MOOCs or advance such plans to offer them after the previous survey tended to provide MOOCs for society and for promotional purposes, not only for themselves because Japanese institutions are self-sustainable in terms of open education activities, operating without the support of the government or foundations.

Keywords: Open Educational Resources; MOOCs; Awareness of OER; National Surveys; Online courses; Japan; Higher Education

Introduction
The spread of OERs and MOOCs around the world
Open Educational Resources (OERs) and Massive Open Online Courses (MOOCs) are being developed and utilized in higher education institutions around the globe. OER activity is conducted through initiatives by institutions and engaged individuals throughout Africa, Asia and Pacific, and Europe. OER activity in tertiary institutions (22.4%) is higher than that in primary or secondary institutions (UNESCO, 2012). A survey of higher education in the United States found that one-third of the faculty surveyed...
were aware of OERs, wished to take advantage of them, and recognized them as equal in quality to traditional educational resources (Allen & Seaman, 2014). A survey of faculty of higher education in India revealed that 41.7% of them have heard of OERs and 25% have created and used OERs (Kumar & Singh, 2017). In general, OERs have come to be seen as an invaluable educational resource for institutions and faculty in every region. There were more than 6850 MOOCs available in the world at the end of 2016 (Class Central, 2016), and 81 of the top 100 universities ranked in Times Higher Education in 2015 offered MOOCs (Open Education Laboratory, 2015).

The Allen and Seaman study (2014) found that approximately half the institutions of higher education in the USA were involved in OER activities, and that the most significant barrier to wider adoption of OERs is faculty perception of the time and effort required to find and evaluate it. In Canada, a survey of OERs in college education conducted jointly by BC campus and OER Hub in the province of British Columbia found that two-thirds of the organizations surveyed believe that students can learn without spending money by using OERs. In addition, when comparing research consolidation schools, education intensive schools, and colleges, it was found that research-intensive schools did not perceive barriers to using OERs. Comments from faculty also show that no institution has sufficient administrative staff and departments to support the use of OERs. In fact, two-thirds of the institutions did not have a policy on the use and encouragement of OERs, especially not for education-intensive schools and colleges. This survey also investigates the reasons that faculty use OERs. Further, it has been shown that, for all institution types, the main reasons for faculty use of OERs are to prepare for classes, to gain ideas and inspiration, and to find material to complement existing classes (Jhangiani, Pitt, Hendricks, Key, & Lalonde, 2016). The Allen and Seaman study (2016) found that the most cited barriers to OER adoption for faculty are lack of resources and difficulty to find. In Asia, the regional survey showed that the use and re-use of OERs are slow because of the various disconnected and disparate repositories (Abeywardena, Gajaraj & Chan, 2012).

Efforts to offer credit and college collaboration through MOOCs are increasing internationally. The UK’s University of Leeds has started a credit-conferring program using FutureLearn (THE News, 2016a). Six universities across Australia, Europe, Canada, and the US are seeking to establish a new alliance in which each organization’s MOOCs are formally accredited by partner institutions (THE News, 2016b). In Asia, some countries have made national efforts to disseminate MOOCs in the region. Thailand and Korea have established national platforms (ThaiMOOC and KMOOC). Chinese universities have established a MOOC platform to collaborate with IT companies (XuetangX and CNMOOC). The Taiwan government offers funding support for universities to develop MOOCs and offer them on the national platform (Taiwan MOOC). Similar to the US and Europe, international collaboration emerges in Asia, too. The Japanese, Korean and Thai MOOC platforms include a memorandum for mutual cooperation (JMOOC, 2017a). A survey of geographic data shows that the mean rate of certificate attainment in Asia countries is relatively higher than the other regions (Nesterko et al., 2013). In many regions, the development and offering of MOOCs mediate educational cooperation in the regions. In addition, the use of MOOCs has expanded in connection with lifelong education programs, such as employment placement based on a certificate as proof of ability.

The development and utilization of OERs and MOOCs in Japan

In Japan, the main means for institutions to participate in OERs are through OpenCourseWare (OCW) initiatives. Sixteen universities and colleges in Japan opened their own OCW sites and published learning materials on them in 2017 (JOCW, 2017). Several universities promote the creation and use of OERs to improve education on campus (Center for OpenEd HU 2017), but, overall, OER
creation and use is still not popular in Japan. On the other hand, there is active use and development of MOOCs in the country. Six universities participate in edX or Coursera and have opened their courses. Several universities, colleges, and companies established a council called JMOOC to promote MOOCs regionally. Forty universities and colleges participate in JMOOC and open MOOC in Japanese (JMOOC, 2017b). Some universities use MOOCs for pre-university improvement education (Docomo Gacco & Osaka Sangyo University, 2016). Lifelong learning is widely considered to be an important opportunity for broadening the horizons of every generation, and MOOCs are seen as stimuli for the promotion of lifelong learning through online education.

**Characteristics of the university system and lifelong learning, and its influence on open education**

Compared to other regions, Japan's open education activity is not overwhelming. One of the reasons for this is a lack of support from governments and foundations. The Japanese government has no OER policy and the funding for open education activities is limited. Foundational support for higher education institutions is limited, except for that of university-owned foundations, which focus on support for their host universities. Most open education activities in Japan are self-funded. This makes it difficult for higher education institutions to robustly and sustainably accelerate the open education movement.

The university system in Japan consists of four-year institutions, two-year institutions, and technical colleges. Two- and four-year institutions established by the national government are well funded compared to private institutions and public institutions established by local governments. Most technical colleges are funded by the national or local governments. For the past decade, however, national and local government funding has decreased due to the government's financial difficulties. In addition, the government’s fiscal policy, which promotes competition among institutions, based on their achievement of prescribed goals, de-incentivizes institutions from using their budget to invest in open education activities, because open education is not among the goals for almost all the institutions. Another reason is that, compared to those in other regions, Japanese institutions have not had to be as sensitive to students’ financial difficulties, particularly with regard to learning materials. Textbook costs, for example, are relatively moderate compared to those in the US. This contributes to the low levels of awareness and introduction of OERs in Japan.

In terms of lifelong learning, a survey shows that strong demand exists in Japan. Nevertheless, compared to other countries, Japan has considerably fewer admissions to university than 25 years ago. In addition, the difficulty of securing the time, the lack of curriculums that cater to mature students, and tuition fees exist as barriers to lifelong learning (MEXT, 2016). In Japan, opportunities for lifelong learning through online education such as MOOCs are effective; indeed, Japanese universities sense the possibility of MOOCs as a means of expanding opportunities for lifelong learning.

**Current open education research in Japan**

The research group the Japan Society for Educational Technology (JSET) promotes domestic and international research on open education and publishes an annual report on OERs and MOOCs. This report aims to not only to publicize the significance and appeal of open education to researchers and educational practitioners in Japan, but also to act as a forum for the research community to share practical experience and findings from practices of open education in Japan (JSET, 2016). However, JSET has not conducted an extensive survey of the use of OERs and MOOCs. In the past, such a survey was planned by the Ministry of Education and was conducted in 2013 by Kyoto University
(Kyoto University, 2014). It found that the degree of recognition and assignment of future value was relatively high in national universities and technical colleges, but relatively low in public universities and two-year institutions. In 2013, only one university offered MOOCs, and only 15 organizations were planning or considering offering them within the next three years. Approximately 80% of four-year institutions and technical colleges and 90% of two-year institutions answered “not offering” or “unknown” regarding MOOC use. The main reasons that institutions provided MOOCs were to increase the number of educational choices, to expand options for providing diverse education, to improve the learning environment for students, to contribute to society, and to distribute educational information and public information for high school students.

**Hypothesis**

Overall, it can be said that the spread of OERs and MOOCs in Japanese higher education institutions has been delayed compared with other countries. However, given the above-mentioned reasons and characteristics of these institutions, it is believed that the growth of open education globally will stimulate regional activities, and there may be further development and usage of OERs and MOOCs. Each institution’s objectives in offering and adopting OERs and MOOCs will affect how they go about doing so. Considering the characteristics of the university system in Japan, higher education institutions may establish strategies to promote MOOCs for lifelong learning rather than OERs for educational improvement.

Until now, no research has focused on these issues. It is important to grasp the conditions of the recognition and utilization of OERs and MOOCs in Japan in order to form suitable responses. Herein we report the levels of awareness, offerings, and adoption of OERs and MOOCs in Japan. For this, in 2015, we conducted a survey that was a continuation of the one conducted in 2013, in order to investigate to what degree the situation has changed and what has caused these changes.

**Methodology**

The latest survey was conducted by AXIES (Academic eXchange for Information Environment and Strategy) from November 2015 to February 2016. Responses are collected via the Internet, through a password-protected form, asking about awareness, offerings, and adoption of OERs and MOOCs and the reasons for doing so in the institutions where they were established. Survey invitations were sent to the administrative offices of the respective institutions of higher education by mail, and the administrators answered the questions with input from faculty and staff familiar with OER and MOOC development and use in each institution. In the questionnaire, we defined OER as “educational resources including lecture materials (OCW, lecture videos, electronic textbooks, learning contents, etc.), educational software, etc. that are available free of charge through the Internet and others” and an MOOC as “a free or affordable lecture that anyone can take through the Internet. For courses with large enrollments (thousands to tens of thousands of people), students will learn using lecture videos and online tests. Typically, it runs over a period of several weeks to several months; grades are presented after the course period; and certificates of completion may be issued to successful participants. There are platforms and service providers such as edX, Coursera, JMOOC, etc.” Regarding the definitions of “awareness,” “offerings,” and “adoption,” we use those proposed by Allen and Seaman (2016). “Awareness” means how aware the respondent is of the existence of OERs or MOOCs. “Offerings” refers to whether the institution develops OERs or opens MOOCs. “Adoption” refers to whether the institution uses OERs or MOOCs.
The survey covered 1215 universities and colleges in Japan (including 798 four-year institutions, 360 two-year institutions, and 57 technical colleges). The overall response rate was 65.2% (including 516 four-year institutions, 222 two-year institutions, and 54 technical colleges). The survey also requested via the administration of each institution that departments investigate the actual circumstances of usage and adoption. Analysis was conducted to understand the tendencies of use of each type of institution (four-year institutions, two-year institutions, and technical colleges) and founding bodies or sources of funding (public institutions supported by the national government, public institutions supported by local governments, and private institutions).

Results

Awareness of OERs

The responses concerning the degree of awareness of OER are shown in Figure 1. By type of institution: The affirmative responses to “very aware” and “aware” were 57.2% for four-year institutions, 46.9% for two-year institutions, and 59.3% for technical colleges. This was a five- to 10-percent increase from the previous survey, depending on the type of institution. The highest level of the negative responses (“not aware”) was from two-year institutions (12.6%); however, this number still represented a decrease from the previous survey. Regarding source of funding, the affirmative responses to “well aware” and “aware” were 68.1% for public institutions supported by the national government, 51.8% for public institutions supported by local governments, and 56% for private institutions. All affirmative responses exceeded 50 percent. Affirmative responses by department were 53.1% for national public institutions, 44.2% for local public institutions, and 52.1% for private institutions. These numbers showed a slight increase from the previous survey. The difference between the affirmative responses by university administrations and by departments decreased slightly from the previous survey.

Offering and adopting OERs

Responses by institutions concerning offering and adopting OERs and MOOCs are shown in Figure 2. The rates of OER offerings and adoption were low for all organizations. Four-year institutions registered highest for offering OER (13.6%), while technical colleges were highest in planning to offer
OERs (14.8%). By source of funding, those established by the national government offered the most OERs (27.5%, 19 institutions). In terms of departments, those supported by the national government offered the most OERs (18.6%), while private institutions most planned to offer OERs in the future (33.3%).

By type of institution, colleges had the highest levels of OER adoption (14.8%), followed by four-year institutions (13.4%). Technical colleges were most planning to adopt OERs in the future (59.2%). By source of funding, national public universities led in adopting OERs (24.6%) as well as planning to adopt OER in the future (46.4%). Institutions supported by the national government had the highest levels of adopting OER (16.1%), while departments of private institutions were most planning to adopt OER in the future (38.5%).

Offering and adopting MOOCs

Regarding institutions currently offering MOOCs, four-year institutions accounted for 5.6% (29 schools, 5 of which are supported by the national government), and two-year institutions 1.4% (3 schools). This represents an increase over the previous survey (one university supported by the national government). Regarding planned offerings, 20.1% of four-year institutions (104 schools), 10.3% of two-year institutions (23 schools), and 14.8% of technical colleges (8 schools) were planning to offer MOOCs in the future. These figures represent a large increase over the previous survey. The number of courses available was one (17 schools) or two (7 schools) among four-year institutions, with one course available at some two-year institutions (3 schools). The same trend held for source of funding: only a single course was available at most universities.

Purpose of offering OERs and MOOCs

Responses by institutions concerning the purposes for offering and adopting these programs are shown in Figure 3. Regarding the purpose of offering OERs, high responses included “Improve learning environment for students,” “Promote educational information,” “Social contribution as a...”

Figure 2: Offering and Adoption of OERs and MOOCs

higher education institution," and "Recruitment for high school students." By type of institution, items pertaining to attracting students and “Improving learning environment for students” (64.3%) were highest among four-year institutions; “Improve learning environment for own students” (81.8%) and “Educational collaboration among universities” (50.0%) were cited by technical colleges.

Regarding the reasons for offering MOOCs, popular responses included “Social contribution as a higher education institution,” “Recruitment of high school students,” and “Support lifelong learning.” Items concerning recruitment of students were higher for public institutions supported by the national government.

For both OERs and MOOCs, the overall tendency by source of funding is similar to that by type of institution, and by departments; the levels were generally low for private institutions.

Figure 3 shows a comparison of the reasons for offering OERs and MOOCs. While most of them are similar, there are some differences. Statistical analysis of the reasons for offering OERs and MOOCs revealed a significant difference between the two on “Improve learning environments for students” ($\chi^2 = 7.714, p < 0.05$). OER is provided in the form of educational materials adjusted to the level of each student according to the content of the course.

![Figure 3: Purposes for offering OERs and MOOCs](image)
Changes from the previous survey about offering MOOCs

We conducted follow-up surveys of 108 institutions of higher education that had indicated plans to offer MOOCs in the previous survey to determine how their efforts on MOOCs changed during the intervening two years and their causes. The results of the follow-up survey are shown in Table 1. Results for the institutions of higher education as a whole show that, since the previous survey, 17.6% actually provided MOOCs. Conversely, 25.9% decided not to offer MOOCs in the past two years, and many institutions stopped offering them.

By type of institution, 13.6% of national universities offered MOOCs, and less than 10% stopped offering them. Among other institutions, there were more that stopped offering MOOCs than started offering them. Public universities established by local governments have not provided MOOCs. At private universities, 24.6% offer MOOCs, which is the highest proportion by funding type, although 27.9% of these decided not to offer MOOCs, exceeding the level of the institutions that offer them. Similar tendencies were found for two-year institutions and technical colleges as for public universities established by local governments, and the number of institutions that decided not to offer them was the highest.

In addition, we separated these institutions into an “active group,” those that provided MOOCs or advanced planning, and an “inactive group,” those that did not. These two groups were compared to determine whether there are differences in their reasons for providing MOOCs according to their responses in this survey.

The results of the comparison are shown in Figure 4. The “active group” was found to have higher scores for “support for lifelong education” ($\chi^2 = 11.800, p < 0.01$), “social contribution as a higher education institution” ($\chi^2 = 10.982, p < 0.01$), and “wider selections of educational opportunities” ($\chi^2 = 4.630, p < 0.05$), while the “inactive group” tended toward “improvement of learning environment of self-student students” ($\chi^2 = 4.630, p < 0.05$).

### Table 1: Results of the follow-up survey on offering MOOCs

<table>
<thead>
<tr>
<th>MOOCs offering</th>
<th>Four-year institution</th>
<th>Two-year institution</th>
<th>Technical College</th>
<th>Overall Average</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>National</td>
<td>Local government</td>
<td>Private</td>
<td>Total</td>
</tr>
<tr>
<td>Offered</td>
<td>13.6%</td>
<td>0.0%</td>
<td>24.6%</td>
<td>20.7%</td>
</tr>
<tr>
<td>Advanced</td>
<td>9.1%</td>
<td>0.0%</td>
<td>1.6%</td>
<td>3.4%</td>
</tr>
<tr>
<td>Same</td>
<td>40.9%</td>
<td>0.0%</td>
<td>18.0%</td>
<td>23.0%</td>
</tr>
<tr>
<td>Delayed</td>
<td>13.6%</td>
<td>25.0%</td>
<td>0.0%</td>
<td>4.6%</td>
</tr>
<tr>
<td>Not offered</td>
<td>9.1%</td>
<td>50.0%</td>
<td>27.9%</td>
<td>24.1%</td>
</tr>
<tr>
<td>Unknown</td>
<td>13.6%</td>
<td>25.0%</td>
<td>27.9%</td>
<td>24.1%</td>
</tr>
</tbody>
</table>

Offered: Planned in 2013 and succeeded in offering in 2015
Advanced: Advances in planning of offerings compared to the results of the previous survey
Same: No change between 2013 and 2015
Delayed: Delayed in planning of offering compared to the results of the previous survey
Not offered: Planned in 2013 and failed to offer in 2015
Unknown: Planned in 2013 and answered “not known” in 2015

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*Open Praxis*, vol. 9 issue 2, April–June 2017, pp. 195–206
Discussion

Awareness of OERs slightly increased from 2013 to 2015. We believe that the awareness of open education rose with the spread of the concept of MOOCs during this period in Japan. The definition of “OER” in the survey may affect this result. In the questionnaire, we define OERs as freely available materials, not openly licensed materials. Some respondents may have considered openly licensed materials to be OERs and therefore incorrectly reported OER use. However, this definition was used in the previous survey, too, and even so, the percentages of awareness of OERs showed a slight increase compared to the previous survey.

Rates of offering and adoption of OERs were quite low in both surveys, perhaps because Japanese universities and colleges have not found it necessary to introduce open textbooks since they are already affordable. The number MOOCs offered has increased rapidly over the past two years, indicating that many universities and colleges have found uses for MOOCs in educational improvement and “innovation” in the learning environment on campus and beyond.

We found four-year institutions to be more advanced in offering and adopting these programs than two-year ones. Presumably, their larger scales and financial margins are the main reason for this. It is possible for them to reorganize their budgets to allow for OER and MOOC development,
considering the self-sustaining nature of Japan's open education activities. The higher proportion of national universities pursuing open education is attributed to the same reasons. We also found higher rates of technical colleges adopting OERs and MOOCs. All technical colleges in Japan share a common core curriculum, and this standardization makes it imperative that they adopt OERs and MOOCs. Private institutions were less likely to offer or adopt OERs or MOOCs than public ones. We believe this is because the fiscal management of private schools is more self-sustaining than that of public ones supported by governmental budgets. Arguably, this situation allows for a strict and fair evaluation of the effects of investment on open education. Survey respondents revealed that they can find incentives to apply OERs through assorted educational materials available according to students' circumstances. MOOCs appear to facilitate lifelong learning and public relations more than OERs. Overall, these results reflect the self-funded nature of open education activities and not official government policy in Japan.

Only about one-fifth of the higher education institutions that planned to offer MOOCs or were in the advanced planning stages of doing so in the previous survey had actually offered them. This indicates the difficulty of providing MOOCs. The year of the previous survey, 2013, saw an MOOC boom and, indeed, was called "The Year of the MOOC," since many universities in Japan began to consider offering such programs. Over the next two years, concerns about the practical effects of MOOCs and the high cost of providing them were discussed, which may explain why the number of universities offering MOOCs has remained limited.

In addition, compared with other organizations, national universities and private universities are large-scale and have the financial margins and capability to offer MOOCs. These institutions can have more offerings than other types of institutions. However, 27.9% of private universities stopped offering them. Private universities in Japan represent a range of sizes, from small student bodies to ones with hundreds of thousands of students. Many of the institutions that stopped offering MOOCs were relatively small private universities.

Also, if we consider the differences in reasoning provided by the "active" and "inactive" groups, the "active group" aims to provide MOOCs for lifelong learning in society, not just for themselves. It might be said that they are oriented towards providing MOOCs for students at all schools. The provision of MOOCs also benefits universities in terms of public relations, making it possible to provide university lectures as a "showcase" outside the university, adding to the social contributions of the university, and therefore attracting more students. Offering MOOCs is considered more expensive and time-consuming than OERs, because MOOCs are generally video-based, so their manufacturing costs tend to be higher. Nevertheless, MOOCs often gain approval from administrative offices in institutions because they are included in strategic plans for promoting the university and help to expand opportunities for lifelong learning, rather than merely supporting students with freely available learning materials.

Limitations

Among the institutions that planned or considered offering MOOCs in the previous survey, the current status of about 30% of them is unknown. These institutions answered, “not known” in this survey, or did not respond at all. Therefore, the overall situation of all Japanese universities is not definitively indicated by this survey. This is a limitation of this study, and further research is needed to establish the situation of each institution in more detail.

For greater understanding of their actual usage, further studies are required to analyze the status of the adoption of OERs and MOOCs by faculty members. As was mentioned above, the wider definition of OER may have influenced the results. More accurate definitions are needed for future surveys. In addition, to clarify the differences in the reasons for offering MOOCs between
“global MOOCs” and “regional MOOCs,” we must distinguish these on the submission form for respondents. A better understanding institutions’ reasons for offering MOOCs may aid in comparing them in future surveys.

Conclusion

Results shows that, while Japan is gradually becoming more aware of OERs, still only a limited number of institutions have adopted or offer them, and, although MOOCs are gradually being offered by more universities, their general availability remains limited. The survey also revealed a difference in institutions’ reasons for offering OERs and MOOCs. While OERs are recognized as enhancing the learning environment, MOOCs still seem to be regarded more as outreach activities, akin to the dissemination of educational information and making social contributions. Comparison of the reasons for “active” and “inactive” groups of institutions offering MOOCs reveals that active institutions provide MOOCs for society and for promotion, not only for themselves, probably because institutions in Japan are self-sustaining in terms of open education activities.

Acknowledgements

This research was conducted within the AXIES (Academic eXchange for Information Environment and Strategy), the subcommittee of research for ICT utilization.

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th-10th 2017 (http://conference.oecdouncil.org/2017), with whom Open Praxis established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in Open Praxis.

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“The best part was the contact!”: Understanding postgraduate students’ experiences of wrapped MOOCs

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Abstract

Mandated to provide support to postgraduate students, the Office of Postgraduate Studies at the University of Cape Town operates in a context characterised by limited funding and resourcing, varied student preparedness for postgraduate study, and increasing student mobility. Extra-curricular academic and professional skills support is offered through a range of modes, including the wrapping of MOOCs. This research explored the contribution of face-to-face, facilitated sessions to the learning experiences of wrapped MOOC participants. Interviews, surveys and course evaluations were analysed using the Community of Inquiry (CoI) framework. Although the CoI framework surfaced complex relationships between the three presences and students’ learning experiences, with students expressing strong appreciation for the face-to-face contact in addition to online learning, the framework does not surface the substantial impact of learner and structural factors as contributors to learning.

Keywords: MOOC; Community of Inquiry framework; Blended learning; Postgraduate

Introduction

The emergence of MOOCs (Massive Open Online Courses) in the virtual landscape has allowed individuals and collectives historically unique and unprecedented opportunities for learning. Offering opportunities for learning across a wide array of disciplines, at various levels of study, with increasing opportunities for self-paced learning, and at the relatively low costs, MOOCs as a site of learning are being taken up in various ways. While most learners engage with MOOCs almost exclusively through platform channels, others encounter MOOCs through or alongside face-to-face learning contexts. The integration of MOOCs and face-to-face learning, sometimes referred to as “wrapping”, creates a range of blended learning contexts, which offer opportunities to support and understand learning.

This study is located in one such blended context where on-campus, postgraduate students at the University of Cape Town, engage in MOOC-based learning as part of voluntary, supplementary studies though the Office for Postgraduate Studies (OPS). This paper describes the wrapped MOOC model adopted by the OPS to address the twin challenges of underpreparedness for postgraduate study, and the poor development of graduate attributes during the course of study. Using the three presences of the Community of Inquiry (Col) framework, we explored the learning experiences of postgraduate students in the particular blended learning space that emerges from the intersection of MOOCs and OPS-facilitated study groups. We found that the presence of an expert facilitator and a local cohort, while substantially enriching the learning experience, did not wholly overcome the challenges of autonomous, voluntary, online learning. We argue that the three presences of Garrison, Anderson and Archer’s (2000) Col framework, while offering a useful entry point to understanding student learning experiences, does not fully capture some significant factors affecting student learning which we discuss later in this paper.
MOOCs in blended learning contexts

MOOCs were initially touted a solution to some of the limitations of higher education (Yuan & Powell, 2013). A relative newcomer to the online learning landscape, MOOCs, designed for primarily distance and scale, are characterised by large course sign-ups (Mustafaraj, 2014), no prerequisites or admission requirements (Sandeen, 2013), increased access (Pappano, 2012), relatively low completion rates (Jordan, 2014; Khalil & Ebner, 2014), no institutional accreditation (Chauhan, 2014), no cost for enrolment and participation, (McAuley, Stewart, Siemens & Cormier, 2010) and, relatively low cost for certification (Dellarocas & Van Alstyne, 2013). Although these characteristics suggest the potential for MOOCs to impact on the educational landscape in positive ways, MOOCs have proven to be neither the solution to the challenge of universal higher education, nor the disruptive innovation that many advocates initially claimed. Various authors have, however, pointed to the positive impact of MOOCs on higher education through stimulating discussion about teaching and learning (Conole, 2013), and the use of technology (Hendrickx, 2016).

MOOC-taking is sharply differentiated by geographical region (Christensen et al., 2013), with participation in MOOCs being particularly variable in developing world contexts (Emanuel, 2013). This can be attributed in part to the cost of MOOC access and registration in developing world contexts (Dellarocas & Van Alstyne, 2013). Additionally, MOOC-takers from the global south may experience barriers to learning related to educational context, cultural backgrounds or linguistic fluencies (Moser-Mercer, 2015), as MOOCs tend to be created by global north universities, with limited numbers of MOOCs produced by developing world universities (Altbach, 2014; Czerniewicz, Deacon, Fife, Small & Walji, 2015).

As the use of MOOCs in the formal, higher education landscape is an emerging practice, there are a limited number of studies that address the integration of MOOCs and face-to-face contexts. Czerniewicz et al. located the use of MOOCs primarily outside the formal learning environment of higher education institutions, but noted “a number of interesting experiments” in integration in these spaces (2015, p. 3). Their representation maps levels of formality (formal, semiformal, informal) against local models of learning provision such as degrees, short courses and professional courses. Although various authors note the integration of MOOCs and face-to-face environments (Bruff, Fisher, McEwen & Smith, 2013; Waldrop, 2013; Li et al., 2014), Czerniewicz et al. (2015) make particular note of the wrapping of MOOCs.

The wide variety of contexts and ways in which “wrapping” occurs has resulted in some debate around the term “wrapped MOOCs”. Fisher’s notion of “wrapping”, taken up by various authors (Bruff et al., 2013; Czerniewicz et al., 2015; Griffiths, 2013; Norberg, Händel & Ödling, 2015; Siemens, Irvine & Code, 2013), is understood to mean the incorporation of all or a substantial part of a MOOC into a face-to-face learning space, with additional support for students (Bruff et al., 2013; Czerniewicz et al., 2015). Caulfield (2013) challenges the use of “wrapping”, highlighting a lack of clarity on what is being wrapped, and offers the alternative idea of “a distributed flip”, defined as the use of “MOOCs to support traditional face-to-face experiences using a blended, flipped format” (Collier & Caulfield, 2013, p. 382). Downes (2013), privileging the online element, asserts that wrapped MOOCs are not MOOCs at all. Although, to date, researchers in the field have not reached consensus on a term for the incorporation of MOOCs into a face-to-face learning environment, we are electing to make use of the term “wrapped” to describe the OPS use of MOOCs.

The Case of the Twin Challenges: Preparedness and Graduate Attributes

Postgraduate students face twin challenges of readiness for postgraduate study, and the acquisition of graduate attributes during a degree. A number of studies express concerns that postgraduate

Open Praxis, vol. 9 issue 2, April–June 2017, pp. 207–221
students lack necessary skills, including critical thinking, public speaking, academic writing, and statistics for research data interpretation, to complete their academic research or be well equipped for the workplace (for examples, see Green, Hammer, & Star, 2009; Nair, Patil & Mertova, 2009). While the challenges of the postgraduate experience receive some attention in the global literature, these are often experienced more sharply in developing world environments, where social and financial inequality produces postgraduate student cohorts that are diverse in their levels of preparedness for postgraduate study (Essa, 2011; Hanyane, 2015), and, regrettably, diverse in their attainment of graduate attributes by the end of a programme (Mouton, 2007; Le Grange & Newmark, 2002; Nchinda, 2002).

Faced with these challenges, the OPS at UCT runs a supplementary programme of academic and professional development opportunities for postgraduate students. While historically, these supplementary activities drew on local and visiting academics to run face-to-face workshops and seminars on critical topics, more recently, facing increasing needs and an austerity climate, the OPS has supplemented the face-to-face programme with the inclusion of selected MOOCs. Between 2013 and 2015, 43 groups have participated in 33 MOOCs from a range of platforms, including Coursera, and edX. The MOOCs selected for inclusion in the programme included MOOCs focused on language and writing development, such as “English Composition I”, and “SciWrite: Writing in the Sciences”, MOOCs focused statistical skills such as “Application of Statistics in Research”, and MOOCs focused on critical skills development such as “Logical Thinking”. In the programme, students meet with a facilitator on a weekly basis for the duration of the MOOC. Group size was capped at 15 to 20 students. These sessions were attended by 406 unique students and facilitated by 29 senior postgraduates or staff.

Adopting a qualitative, case study approach, a range of primary and secondary data was collected for the 2013 to 2015 period of the programme. The total sample was made up of 406 students and 27 facilitators. Data sources included three semi-structured student and five semi-structured facilitator interviews, generating seven hours of data; 35 online student surveys; and 62 open-ended student course evaluations. This data was analysed using content analysis (Stemler, 2001), with the CoI presences, discussed in the following section, providing predetermined codes.

The Community of Inquiry Framework

Garrison, Anderson and Archer’s (2000) Community of Inquiry (CoI) framework (Figure 1), initially developed to investigate the use of text-based, online communication in an exclusively online learning environment, was adopted to understand the experiences of students in a wrapped MOOC. Although predominantly used for analysis of text-based, asynchronous online discussions, CoI has been used in other blended contexts (for examples see, Szeto, 2015; Tik, 2016 and, Vaughan & Garrison, 2005). The model establishes three key concepts: social presence, cognitive presence and facilitator presence, and how the interactions of these produce an educational experience (Garrison, Anderson & Archer, 2009). While it is the meaningful interaction of the three CoI presences that produces learning (Ferrera, Ostrander & Crabtree-Nelson, 2013), Rovai (2002) proposes that successful learning is related to a stronger sense of community. The three presences are not mutually exclusive, and continuously shift depending on the educational context (Swan, Garrison & Richardson, 2009). Garrison, Anderson and Archer (2009, p. 6) identify the goal of the model as “defin[ing], describ[ing] and measur[ing] the elements of a collaborative and worthwhile educational experience”. Reflecting on the development of the model, the authors assert that it “would provide order, heuristic understanding and a methodology” for studying online communication (p. 6).
Drawing on the CoI framework, observational, survey and interview data were collected and analysed. The context and literature pointed to additional factors, outlined in the discussion section, which emerged during the analysis. The findings from this analysis and the limitations of the CoI framework for understanding a blended learning context are discussed in the following sections.

![Community of Inquiry framework](image)

**Figure 1: Community of Inquiry framework (Garrison, Anderson & Archer, 2000)**

**Findings**

In line with other blended learning contexts in the literature, students’ experiences of the wrapped sessions were largely positive with marked preferences for face-to-face contact in addition to online learning. The CoI framework highlighted a clear alignment between the three presences and students’ learning experiences.

**Teaching presence**

Teaching presence focuses on the design, facilitation and organisation of the course activities, content and schedule, and plays a pivotal role in fostering in social and cognitive presence (Garrison, Anderson & Archer, 2009). In this case study, the facilitator played a central role in wrapped MOOCs, focused on contextualising content, setting the climate in the classroom, and designing and adapting MOOC activities.

**Contextualising content**

Student satisfaction with the learning experience seemed linked to facilitators’ ability and willingness to engage in regional and disciplinary contextualisation. In line with Bulger, Bright and Cobo’s (2015)
claim that most MOOCs relate to developed regions and challenges may exist when MOOCs are adopted in a developing region context. One of the facilitators accounted for the changes she made by explaining that many of the MOOCs are from “universities globally that have very western affiliations” (Facilitator A, Interview). Additionally, students expected that sessions would provide contextualisation that would suit their needs: “I hoped that maybe UCT might like, twist it a bit to kind of more suit our needs or like make it more specific to UCT students rather than anyone who wants to do this course” (Student B, Interview). Face-to-face sessions provided a place for the “practical application in [a] South African context” (NE37, Survey) and used the skills acquired in the course to “analyse African/South African problems” (NE38, Survey).

Faced with variation in students’ disciplinary backgrounds, some facilitators opted to adapt the content along disciplinary lines. One student remarked the facilitated sessions were used “to relate the course to our own research and background” (NE40, Survey). Other facilitators encouraged students to focus on their own contexts and needs when completing MOOC activities. For example, in the public speaking MOOC, Facilitator C asked students to prepare presentations for class based on their own context.

**Setting the climate for learning in the facilitated sessions**

When asked to describe the climate in facilitated sessions, facilitators reported creating a less formal, hierarchical classroom climate than found in many UCT contexts. As many facilitators were themselves postgraduate students, they related to their students as peers. Facilitator C noted there “was no need to discipline or keep them [students] in line.” Facilitator B reinforced this notion saying that since the students were postgraduates, it was easier to form collegial social and intellectual relationships, whereas with undergraduate students, she felt “motherly.”

**Designing and adapting MOOC activities**

While facilitators’ contractual obligation to the OPS was to support student learning, facilitators interpreted this differently. Some facilitators adopted an active role, adapting MOOC content by designing worksheets and activities that would work in the classroom environment to allow students to be “participatory and involved” (Facilitator A, Interview). In another case, the facilitator brought peer assessment activities from the MOOC into the facilitated session for face-to-face peer feedback. By way of contrast, some facilitators used sessions as an opportunity to stimulate discussion about the MOOC content that students would have completed in their own time. One facilitator made use of the lab space to host working sessions when students engaged with MOOC content individually but could request assistance. A student in these sessions remarked, “I came here to talk about what we have been learning online and not to carry on with the online material (Student A, Interview)”. While some facilitators made learning design choices without explicitly consulting students, Facilitator C solicited student input on learning design with students opting to use session time to engage in practical activities and discussions, rather than using the time online (Interview). Student preferences for active face-to-face engagement is highlighted in the literature. (Bruff et al., 2013; Chen & Chen, 2015).

In order to apply the term wrapped MOOC to a learning experience, we suggested earlier that the whole of MOOC needed to be used. However, various authors (Agarwal, 2014; Collier & Caulfield, 2013; Krause, 2014) note that MOOCs are being used as textbooks or OER, where local users or facilitators select the content they wish to engage with, shifting the primary site of learning from the MOOC to the face-to-face context. In this study, although the sessions were designed to wrap MOOCs, student behaviour sometimes pushed facilitators to treat MOOCs as OERs. Students
seemed to expect that facilitators would cover key MOOC content in the class (Facilitator L) - “...some of the other people only came to the facilitated sessions and did little -- if anything -- of the online work” (NE18, Course evaluation). Some facilitators used the MOOC themes and key content to structure their sessions, anticipating that not all students would come prepared to class. This enabled students who were unable to keep up online, to absorb key points of the MOOC and to continue to attend facilitated sessions. Sessions designed in this way seemed to be well received, especially when the MOOC in question focused on a generic skill such as writing or public speaking, or in cases where students had prior knowledge of the field and were using the MOOC for revision or supplementation purposes. This behaviour does, however, shift the primary space of learning from the MOOC to the face-to-face classroom.

Social Presence

Social presence focuses on students’ ability to develop relationships and interact with their peers in an open, risk-free manner (Garrison & Vaughan, 2008). As many UCT postgraduates come from other institutions, and are, additionally, less likely to experience the cohort-based classroom practices that undergraduates are familiar with, feelings of isolation are a common experience. In addition to academic difficulties, postgraduate students may experience social isolation, a lack of emotional support, and may struggle to form meaningful relationships with their peers (Janta, Lugosi & Brown, 2014; Panda, 2016; Wisker, Robinson & Shacham, 2007). Thus, understanding the role of social presence in learning is particularly important for this type of student. Interviews with students surfaced the importance of interaction, social space, and a sense of belonging and community which they explicitly contrasted with the online experience.

Interactivity and discussion

Students were able to communicate comfortably and collaborated among their peers and facilitators. Students enjoyed sharing ideas: “It was useful to talk about the assignments and discuss some of the common challenges that we all face with regards to writing (Survey, NE15)”. They expressed particular satisfaction in working through challenges communally: “...classmates came with their individual practical challenges and we went through them together” (M56, Survey). Facilitators shared students’ experiences, similarly finding satisfaction in learning with their students: “The class was excellent at providing feedback to their fellow classmates and we were all able to learn from each other” (Facilitator G, Course evaluation). The flattened hierarchies in the classroom created opportunities for facilitator learning: “The weekly sessions were of extreme value to me, as it offered me to share ideas with others and learn from them” (Facilitator F, Course evaluation).

Social space for postgraduate students

Participants found solace in their peers, knowing that they too had similar interests and challenges. While the term ‘loneliness’ was only mentioned explicitly by one facilitator and one student, many comments suggested that attendance at the facilitated sessions of the MOOCs was in part driven by the isolation of being a postgraduate student. For example, one student remarked that “it may sound cheesy but I felt far less alone to know that colleagues in science or whatever were facing similar challenges” (NE20, Course evaluation). Facilitator H referred to the sessions as a form of “group therapy”. These comments support the literature that state that postgraduate students suffer from social isolation and are seeking real-life peer interaction through MOOCs (Janta, Lugosi & Brown, 2014; Panda, 2016).
Face-to-face vs online

Differences emerged between a purely online course and a course with face-to-face support. Students highlighted the value of interaction: one student explained, “I was able to ask questions and interact with other students having the same queries, which is not possible with a purely online course (NE36, Course evaluation)”. Similarly, another stated “The discussions were more real than that of online peers (MS19, Survey)”. Students asserted the importance of a sense of shared challenge which they struggled to establish with online peers - “It was useful to talk about the assignments and discuss some of the common challenges that we all face with regards to writing” (NE15, Course evaluation). The preference for face-to-face discussion over online course discussion is supported by the literature (Bruff et al., 2013, Chen & Chen, 2015). Especially when students have both options available to them, Macdonald (2008) points out that most students would choose the face-to-face option as has occurred in this context.

Sense of belonging and community

The face-to-face group supported the development of a sense of belonging and community across departmental boundaries. One facilitator felt the group “definitely developed a bond with each other, they would high-five each other before they go up [to present], they would cheer for each other, they really got into it” (Facilitator C, Interview). In another group, if an individual was missing from class, someone else would “quickly message and see if they’re coming” (Facilitator A, Interview). In Facilitator B’s experience, students freely shared ideas and tips, aligning with Bulger, Bright and Cobo’s (2015) assertion that students attended MOOC meet-ups to share common ideas and perspectives (Interview). The available evidence seems to suggest that a comfortable, supportive, non-judgemental environment supported community building among students. There were, however, some facilitators and students who did not feel a sense of belonging or community. As discussed later, group size was a factor: Facilitator E pointed out that in an undersubscribed wrapped MOOC with only two participants, “there wasn’t much sense of a community or camaraderie” (Interview).

Cognitive Presence

Cognitive presence focuses on the process of inquiry, including developing higher order thinking and construction through personal meaning (Garrison & Vaughan, 2008). Cognitive presence is grounded in Dewey’s practical inquiry model (1938, cited in Swan & Ice, 2010), incorporating four phases of the inquiry process. This process starts with 1) a triggering event, where a problem or issue is identified, or some form of cognitive dissonance, 2) exploration, where the problem is explored, 3) integration, where students develop understanding and 4) the last phase, where students are able to apply their newly acquired knowledge to real-life contexts (Garrison, Anderson & Archer, 2010).

Applying MOOC content to studies

Although Garrison, Anderson and Archer (2001) focus on resolution as a key phase in cognitive presence, they do so in the context of an accredited, formal, online course. In this study, where student participation is wholly voluntary and undertaken in a blended context, the four phases of inquiry are all represented.

For many students, access to MOOC material served a primarily triggering function, exposing them to new content or skills. For example, Facilitator F observed, “Many students came to the seminars, wanting to ask questions about the course material” (Interview). For a number of
students, the face-to-face sessions provided an opportunity to explore a problem more completely: “...classmates came with their individual practical challenges and we went through them together” (MS6, Survey) with various students affirming the importance of sharing challenges with peers.

However, the face-to-face sessions also created opportunities for integration with one student asserting: “[The] course was helpful to strengthen my presentation skills.” Students reported using the wrapped writing MOOCs to support completing their master’s thesis (MS28, Survey), and a PhD in the Sciences (MS13, Survey). Another PhD student used the R programming wrapped MOOC to successfully build skills for analysing data for their PhD (MS27, Survey), while a student who was completing masters coursework used wrapped MOOC participation to boost their grade in a biostatistics module (MS6, Survey). For many, the wrapped MOOCs had a positive effect on their master’s or PhD dissertations. There were, however, some examples of the significant impact of the wrapped MOOCs on the students’ professional and personal lives with students reporting increased confidence in their ability to interact with students and colleagues.

**Discipline and relevance of the MOOC**

A single wrapped session might include students from multiple faculties of disciplines. This disciplinary diversity presented a challenge for facilitator and students when the MOOC content focused on a specific discipline, rather than interdisciplinary skills such as public speaking or academic writing.

For the most part, students responded positively to courses that assumed an interdisciplinary audience: “The course wasn't discipline specific and everybody could benefit” (NE19, Course evaluation). Even in these cases though, where the online content was not relevant or pitched at the right level, facilitator intervention “made it relevant and stimulating” (NE21, Course evaluation). By contrast, in one case, a student found the course “was too broad”, showing the downside of the interdisciplinary approach (NE20, Course evaluation).

Occasionally, students found courses to be too focused to permit non-specialist access. A genetic counselling student registered for a MOOC in Understanding Health Studies Research noted “overall the course was very skewed towards nursing” (NE39, Course evaluation). Similarly, a non-STEM student registered for a MOOC in “Creativity, Innovation and Change” asserted that the course seemed directed to a disciplinary audience: “…it [the course] seemed directed more at students with a science/engineering/entrepreneurship background” (OE19, Course evaluation). Another student highlighted a difficulty raised through the disciplinary context: “…examples were not related to me, which sometimes made it difficult to follow along” (NE10, Course evaluation).

Student experiences of relevance of the MOOC content to ‘real-world’ contexts appears to be a factor influencing their learning (Hood, Littlejohn & Milligan, 2015), and therefore impacted whether students had a meaningful learning experience. This is a factor in the outcome of cognitive presence, although the extent of the impact of this factor requires further research.

**Discussion**

While the CoI framework is very useful for focusing our attention on the three presences, the context in which we are looking at learning is substantially different from the context in which the framework was developed. Critically, the framework was developed in the context of a formal, accredited course where instrumental motivation and various structural systems manage issues around student participation, while the OPS supplemental programme is entirely voluntary. Recently, the use of the model has expanded in two key ways that make it suitable for this context. Firstly, researchers have proposed the addition of a learner presence, arguing that the CoI framework fails
to adequately consider the student in constructing the learning experience (Jezegou, 2010; Shea et al., 2012). Secondly, the application of the framework has been extended beyond online, text-based communication to blended learning contexts (Akyol, Garrison & Ozden; 2009).

### Learner Presence

Garrison, Anderson & Archer’s (2000) version of the framework, which includes the three presences (facilitator, social and cognitive presence) addressed above, emerged in the context of formal, online, text-based communications in a graduate programme as a tool to “define, describe and measure the elements of a collaborative and worthwhile educational experience” (Garrison, Anderson & Archer, 2009, p. 6). When applied to blended learning contexts and, particularly, to informal learning contexts, arguments, such as those made by Jezegou (2010), and Shea and Bidjerano (2010), for the inclusion of a “learner presence” category begin to carry increasing weight. Given the conventions in online, informal learning, learner presence caters to the self-regulated characteristics embodied by many students.

In this study, student participation, both in the MOOC and in the facilitated face-to-face sessions is entirely voluntary, and poor participation or even withdrawing from the programme entirely carries few social or financial costs. Thus, in an attempt to describe student experiences of the facilitated sessions, we inspected the data for material relating to learner presence. Two clear categories of response pertaining to the presence of the learner emerged from the data. The first of these, motivation, relates to learners’ capacities to stay present and committed through a voluntary learning experience, while the second, workload and time commitment, relates to competing demands for students’ attention.

Students mentioned the need for intrinsic motivation in order to stay engaged throughout the course. Some students cited the “personal desire to advance one’s knowledge” as the primary form of motivation to completing the course (Student C, Interview). A student noted that the wrapped MOOC experience requires more “self-motivation than normal undergraduate lectures” but concluded that “the rewards are probably greater” (MS11, Survey). Another student distinguished between general or extrinsic and intrinsic motivations for engaging in the course: “I have this desire to be able to write well and...that probably motivated me a bit extra [than] just wanting to be able to write a thesis” (Student B, Interview). Here motivation came from two related directions, namely to enable the student to write her thesis (extrinsic), and a personal desire to write well (intrinsic). Facilitators were asked how they motivated students and how they got students to participate. Facilitator C said when “people are self-motivated, that’s the big part of it, they have to want to be there” (Interview). Facilitator B proclaimed “…it was intrinsic because it was goal driven, they wanted to achieve something at the end of the 8 weeks. So I didn’t have to do any external motivating, it came from within” (Interview).

Some students, despite a strong interest and enthusiasm, found it difficult to successfully retain the online learning and face-to-face sessions in their schedules. One student explained, “It was all helpful, it was just difficult to get to the classes sometimes because of other time constraints” (NE36, Course evaluation). Other students attributed imperfect attendance or dropout to the demands of their accredited degree courses: for example, “the coursework started to get longer and longer each week, which had not been outlined from the start. This, coupled with a heavy workload, forced my withdrawal from the course” (OE8, Course evaluation).

### Structural factors impacting on Teaching, Cognitive, Social, and Learner Presence

Akyol, Garrison and Ozden (2009) identify a number of “external factors” outside of the CoI framework that impact on the development of the CoI presences, and consequently a student’s educational
experience. A few publications in the CoI literature mention the issue of external factors, including the impact of time (Akyol & Garrison, 2008), course duration (Akyol, Vaughan & Garrison, 2011), subject matter (Arbaugh, Bangert & Cleveland-Innes, 2010) and the use of asynchronous audio feedback in comparison to text-based feedback (Ice, Curtis, Phillips & Wells, 2007). A review of the literature offers an alternative term - structural factors, drawing on Giddens’s notions of structure (1984). As classifying a factor as “external” requires the defining and maintaining of shared boundaries by researchers and readers, an exercise that can lead to misunderstandings, we prefer the term “structural factors”. Additionally, the use of “structural factors” points to structure-agency tension, a useful dichotomy to keep in mind when examining learning experiences.

In summary, the structural factors that impacted on the way in which students and facilitators engaged with the MOOC included, duration of the facilitated sessions, scheduling of the facilitated session, group size, and physical space. Data highlighted facilitators’ and students' perceptions of these factors as affecting the creating of the CoI and by extension the students’ learning experiences, but typically, the CoI framework does not offer a way to explicitly surface the impact of these factors. The CoI framework, developed as it was for a formal accredited online course in a technologically flat context, does not offer opportunities for researchers to consider the ways in which the scheduling of face-to-face times, venues, or group size might significantly impact on students’ ability to attend class, and therefore advance their learning.

Participants commented on time in relation to duration and scheduling of sessions. The duration of sessions was constrained by institutional contracts with tutors, with participants experiencing this as constraining their learning experience. Limited contact time may have constrained students’ ability to move through practical inquiry phases and successfully resolve their triggering event. Both students and facilitators remarked on the impact of the scheduling of the session in relation to the release of MOOC material online, on learning design choices and student behaviour. When there was insufficient time to prepare between online release dates and facilitated sessions, facilitators opted for content-heavy sessions to accommodate the likelihood of unprepared students.

Another structural constraint that emerged from the data was group size. As sign-ups only allowed for 15 to 20 students, loss of students over time led to groups as small as two or three students. Students remarked on group attrition (MS6, Survey; MS7, Survey) and indicated a preference for group sizes that allowed for interesting and varied discussions. A review of the literature suggests that optimal group size to encourage a sense of community is dependent on a number of factors such as course topic, teacher and the students (Akyol, Garrison & Ozden, 2009; Rovai, 2002).

Students’ learning experience was also related to the nature of the physical space. Facilitated sessions were hosted either in classrooms or computer labs. In the case of one facilitated group, the lab context was viewed as conducive to working on the MOOC, while in another it was seen as “not conducive for discussion” (Facilitator E, Interview) and “a bit of a barrier to facilitating conversation among people” (Student B, Interview). The suitability of venue depended on the type of MOOC, students’ learning preferences, and on the learning design choices of the facilitator.

**Conclusion**

The OPS’s supplemental instruction programme seeks to address two key challenges: underpreparedness for postgraduate study, and limited opportunities to develop postgraduate attributes during postgraduate study. The adoption of wrapped MOOCs as one way of doing this had the additional benefit of addressing social needs arising from the mobility and isolation of the postgraduate experience. The use of the CoI framework focused our attention on social presence, cognitive presence and facilitator presence. The alignment between cognitive presence, inquiry, and
specific learning outcomes; and social presence, community and students' social needs allowed the use of the framework to highlight the extent to which wrapped MOOCs, as a learning design, met the OPS's challenge. The analysis of the data highlighted participants’ valuing of the face-to-face context, both for contact with a local peer group and for access to facilitators with experience of local and disciplinary contexts. The CoI framework, through teasing apart cognitive, social and teaching presences, provides valuable insight into understanding wrapped MOOC participants’ learning experiences. In the hands of institutional administrators and facilitators, this understanding can help to create learning communities that respond effectively and sensitively to emerging student needs. While the CoI framework allows us to look more closely at factors within the learning space (teaching presence, cognitive presence and social presence), a more comprehensive framework for learning design would include both a more carefully constructed learner presence and a way of understanding structural factors that impact on the wrapped MOOC learning experience.

Acknowledgement

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th–10th 2017 (http://conference.oeconsortium.org/2017), with whom Open Praxis established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in Open Praxis.

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Open Praxis, vol. 9 issue 2, April–June 2017, pp. 207–221


Postgraduate students as OER capacitors

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Abstract

A comprehensive theoretical, legal and practical basis for OER has been developed over the past fifteen years, supported by the expansion of open source curation platforms and the work of advocacy groups and international bodies. OER's potential has been sufficiently documented; the question remains how best to support, integrate and normalise OER activity within the academic community in a sustainable fashion. This paper draws on the experiences of the Vice Chancellor's Open Educational Resources Adaptation project in the University of Cape Town, which explored whether postgraduate students, with their blend of developing subject knowledge, greater time resources, and experience of teaching artefacts from both a learner's and educator's perspective, may be a valuable resource for lecturers or institutions eager to engage in OER but lacking the requisite support structures. It was found that postgraduates were best employed as capacitating agents, focusing on the non-pedagogical elements of OER adaptation.

Keywords: open educational resources; postgraduate students; sustainability; intellectual property management; openness; OER

Introduction

Particularly in the developing world, the accessibility, reach and sustainability of higher education provision has been highlighted as one of the primary challenges facing the sector, as the international economic situation continues to provide less-than desired rates of growth. Furthermore, institutions are simultaneously being tasked with improving the relevance of their teaching and beginning to engage more strategically in informal, adult and lifelong learning.

Open Educational Resources (OER) have been posited as a mechanism to help reconcile these varying demands in the higher education sector (Atkins, Brown & Hammond, 2007; CERI, 2007; Caswell, Henson, Jensen & Wiley, 2008). Through producing these reusable, revisable and freely available online educational resources, educators are able to share high-quality materials in their disciplines with each other, provide students with access to materials to assist in ‘flipping the classroom’ and other forms of educational innovation, and allow non-students the chance to engage with higher education by accessing the educational artefacts that support the learning process.

Producing OER however requires time and resources (Spilovoy & Seaman, 2015). Evidence to date (Camilleri & Ehlers, 2011) suggests that without the support and additional resources provided by a mandatory institutional OER programme, university educators are disincentivised to engage systemically with OER production, outside its adoption by a small group of innovators. Developing such a programme is a time-intensive process, and invariably requires the time and resources of a number of institutional stakeholders across the institution, including intellectual property specialists, contracting lawyers, and senior management. This require a strong will in the executive to enact, as well as specifically earmarked resources, both of which may be less practical for under-resourced institutions struggling to fulfil their existing teaching requirements.
Even if an appropriately comprehensive policy is established, engaging with it requires lecturers to commit additional resources, in terms of both time and the development of a new skillset appropriate to online, open education. These competencies, including intellectual property management and technical skills, have not traditionally been integral to the core operations of individual lecturers. Developing these competencies and allocating the time to adapt teaching materials into OER therefore may not be feasible in the short-term, particularly in institutional environments which do not incentivise this activity.

However, lecturers often have access to an untapped resource—postgraduate students. Postgraduate students occupy a particular position in the academic ecosystem with regards to their lecturers’ teaching materials, having experienced them from the student’s perspective as well as potentially from the educator’s perspective through tutoring or teaching assistance. They also typically have more time, necessary for developing the technical and intellectual property skills needed for OER adaptation. Employing postgraduate students within the OER production chain could therefore potentially be an innovative way for lecturers who lack a strong institutional support structure to engage in Open Education.

Sustainability of OER

While OER has been posited as a means to reduce time costs in education by providing high-quality sets of materials that require only adaptation to an educator’s teaching needs (Lane, 2008), this scenario relies on a critical mass of OER and OER production practice. Until that point is reached, creating OER requires additional effort on top of existing teaching requirements. In the meantime, there is a need for models and workflows that help build the sustainability of the movement.

Once the potential benefits of OER had been demonstrated by standout OER initiatives conducted at the Massachusetts Institute of Technology, Rice University (Baraniuk, 2008) and the Open University (Gourley & Lane, 2009) significant effort was made by institutions (Rodgers, 2011; Kanwar, Kodhandaraman & Umar, 2010), consortia (such as Jisc: https://www.jisc.ac.uk/) and individual lecturers to develop sustainability frameworks and models that could ensure that the initial momentum would result in lasting change. Various aspects of the OER ecosystem have been identified as crucial to the normalisation of OER practice within an institution, such as OER champions (McGill, 2013; Tucker & Bateman, 2009); a supportive IP policy and institutional buy-in (Miao, Mishra & McGreal, 2016); and the establishment of institutional support structures and networks (OECD, 2005; Wiley, 2007).

The most sustainable OER projects appear to be those that are supported by an institutional mandate, ideally one that stress that “OER release and use is an integral part of existing activities, an approach that supports ongoing sustainability” (McGill, 2010, p. 1). While short-term or soft-funded OER projects are certainly valuable in developing the skills and competencies required for OER production, as well as producing actual OER artefacts, they suffer from a lack of sustainability. As projects finish and the support in terms of resources and advocacy comes to an end, OER activity often also slows or ceases, as evinced by the Utah State University OER programme’s closure (http://ocw.usu.edu) as the ability of lecturers to continue producing OER without additional support wanes.

However, engagement in OER should not necessarily be contingent on a supportive policy environment. There should be space for individual lecturers to engage in their own OER production, but doing so requires an assessment of the intellectual and time costs of engagement compared against the academic’s other commitments. This is of particular importance in institutions in developing countries, which often lack the resources and IP support structures that the current high
OER-producing institutions possess (D’Antoni, 2009). While it is certainly possible for individual lecturers to develop their own OER without support, they may also be in a position to use existing support networks, in the form of postgraduate students, to enhance the quality and quantity of their OER output.

**Student involvement in OER**

Much of the literature regarding student interaction with OER concerns their role as learners or consumers (Lee & McLoughlin, 2007; Carson, Kanchanaraksa, Gooding, Mulder & Schuwer, 2012). A few studies have explored students’ potential as OER creators, such as Kleymeer, Kleinman and Hanss (2010) and Hodgkinson-Williams and Paskevicius (2013); fewer still have fully explored their potential role as adapters of existing teaching materials into OER.

Initial research has explored the concept that postgraduate student involvement can support sustainable practice by taking responsibility of some of the activities needed to transform a standard teaching artefact into an OER, freeing up academic time to focus on the pedagogical development and performative elements of teaching (Kleymeer, Kleinman & Hanss, 2010). They can also provide quality enhancement to the completed OER. While much of criteria for determining quality is shared between traditional closed-access teaching materials and OER, there exist other “Domains of Learning” (Kawachi, 2013, p. 19), including technical, curatorial and metadata considerations as well as more traditional pedagogical concerns, in which the quality of an OER can be measured. Students or other third-party adapters can perform adaptation work that enhances areas of quality that did not apply to classroom-focused teaching.

Quality of OER is based on the quality factors that would apply to any non-open teaching resource, with additional quality measures that apply as the distributional and legal factors begin to exert themselves as the resources leave the confines of the classroom and enter the public sphere. These involve the strategic choice of file formats (to ensure reuse and/or revisability), file size (for use by those in low infrastructure areas), quality of the descriptive metadata, and other technical concerns separate from the resources’ pedagogical elements. To be legally open, they also need to contain only legally re-shareable third-party content, such as those under Creative Commons licences.

The scenario above makes the assumption that the teaching artefacts—lecture notes, visualisations, simulations, presentations, videos, etc.—are valuable in and of themselves. This is an implicit assumption in OER advocacy: the potential for (well-designed, adequately described, possibly scaffolded) teaching materials to be useful outside of their immediate performative context, i.e. a specific classroom environment. This potential depends strongly on the creator’s pedagogical style and the nature of the activity the materials support - for example, educators who use humour, classroom interaction or debate may need to adapt their materials heavily to make them most useful to an online, decontextualised audience. Here again, a third-party eye on the materials, distanced from the experience of teaching them according to a specific performative style, can adapt (or offer advice on how to adapt) the materials so as to maximise their reach.

As adaptation is based on existing materials, the costs incurred in adaptation is largely in terms of time – both in terms of developing the skills and competencies required to adapt, and the actual adaptation work itself. In most cases no specialised or proprietary software is required, and the abundance of open subject repositories means that an institutional lack in that area is not necessarily a barrier to OER engagement. As the creator, the educator may not be aware of exactly how their materials are being interpreted from the student perspective, and thus may include superfluous materials, under-elaborate certain points or over-emphasis others. A critical eye that can parse the...
materials through the audience’s perspective could be a useful support mechanism to maximise the value of the materials.

Thankfully, many educators have access to a useful local resource that combines a learner’s perspective, a developing critical gaze, and simply more capacity in terms of available time - postgraduate students. Postgraduate students occupy an interesting educational niche in many/most institutions, simultaneously learning as students and teaching (or facilitating teaching) as tutors or teaching assistants. As such they can potentially experience a particular teaching resource from both the student and instructor’s perspective. Conversely their formal experience in pedagogical design is likely to be limited. Harnessing this perspective to enhance the quality of the materials is one potential way of incorporating students in OER development.

Study site – the Vice Chancellor’s Open Educational Resources Adaptation project

This paper draws on a specific project, namely the Vice Chancellor’s Open Educational Resources Adaptation project (hereafter, ‘the Adaptation project’), organised by the Centre for Innovation in Learning and Teaching (CILT) at the University of Cape Town (UCT). This project piloted an innovative process aimed at supporting institutional OER activity by employing postgraduate students as ‘hunter-gatherers’ of potential OER. In this role, student adapters would actively seek out high-quality teaching materials (based on personal and peer experiences) and attempt to persuade their creators to offer them for adaptation. Based on the assumption that a number of lecturers would be willing to share their materials as OER but lack the technical and IP skills needed to adapt them into OER themselves, the students took responsibility for all of the adaptation work needed to transform a teaching artefact into an OER.

UCT’s intellectual property policy, which shares copyright of teaching and learning materials between the university and the lecturers who produced them, permits for autonomous engagement in OER activity. While there are a number of grant processes that assist lecturers in this production, and the presence of a unit that among other roles can support lecturers in this regard (CILT), the institution does not have a formal OER mandate and does not actively incentivise lecturers to produce OER.¹ This lack of incentivisation has been identified as a possible barrier preventing otherwise-interested lecturers from engaging in OER production (Kursun, Cagiltay & Can, 2014). As incentivisation is reliant on upper-management decisions, the ability for a short-term project to change policy at that level was limited. In contrast, the Adaptation project took an agile alternative approach in supporting lecturers in developing their own enabling systems for OER production, specifically through employing students to reduce the time costs of OER engagement.

As the student adapters were responsible for identifying which materials should be adapted, an attempt was made to recruit from each of UCT’s faculties, as a level of disciplinary familiarity (and ideally personal experience of the materials as a learner) was considered valuable in identifying quality teaching materials and supporting any attempts to change the educational or pedagogical content during adaptation. Five students were substantively involved in the project, adapting materials from nine lecturers. The student adapters were employed on a paid-on-claim basis, allowing them a degree of flexibility in their working hours, under the assumption they would work approximately five hours per week. The following table maps the students and lecturers to the UCT faculties in which they studied and worked:

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¹ Correct at time of writing.
This acquisition process was a necessary condition for the main body of work, the adaptation work itself. The nature of the adaptation work is dependent on the level of responsibility the student adapters are given and the ‘moment’ in which they become involved in the OER process, namely the **generative moment**, the **adaptation moment**, and the **publication moment**. These moments broadly correspond to the three letters of OER, as shown below:

![Educational (generation)](image)

**Conceptual design, curriculum design/shaping, teaching mode (written, visual, etc.)**

**Skills**: content knowledge, learning design  
**Time**: High

---

![Open (adaptation)](image)

**Copyright clearance & Intellectual Property Management**

**Skills**: Intellectual property management, copyright clearance  
**Time**: Moderate

---

![Resources (publication)](image)

**Technical editing, publication, metadata**

**Skills**: Technical editing, publishing, metadata  
**Time**: Low/Moderate

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**Figure 1**: ‘Moments’ in the OER Adaptation process

In the Adaptation project, the role of the student adapters was conceived of as operating at primarily the **adaptation** (‘O’) and **publication** (‘R’) moments; specifically, their work was to find pedagogically-complete teaching materials, perform copyright-clearance on them and subsequently apply an appropriate Creative Commons licence. Simultaneously they would perform technical editing on the materials, ranging from correction of typos, reformatting to open file types, and ascribing metadata for the final upload to the institutional repository (OpenUCT: [http://open.uct.ac.za](http://open.uct.ac.za)). While the project acknowledged the possibility for pedagogical-level changes, these were felt to be less likely as the materials to be adapted were supposed to already be used in teaching, and therefore assumed to be pedagogically ‘complete’. All changes were intended to be done only after communicating

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<table>
<thead>
<tr>
<th>Student</th>
<th>Student faculty of origin</th>
<th>Origin of adapted materials</th>
</tr>
</thead>
<tbody>
<tr>
<td>Student 1</td>
<td>Humanities</td>
<td>Humanities (2)</td>
</tr>
<tr>
<td>Student 2</td>
<td>Humanities</td>
<td>Humanities</td>
</tr>
<tr>
<td>Student 3</td>
<td>Science</td>
<td>Humanities, Sciences (2)</td>
</tr>
<tr>
<td>Student 4</td>
<td>Humanities</td>
<td>Humanities (2)</td>
</tr>
<tr>
<td>Student 5</td>
<td>Commerce</td>
<td>Commerce</td>
</tr>
</tbody>
</table>
with the contributing academic. The requisite intellectual property management and technical skills (metadata and curation) needed were developed in training sessions held at CILT, which also advised the adapters on acquisition strategies.

In this activity the student adapters were envisioned as acting as OER advocates as well as material developers. Through their acquisition activity, it was hoped that they would spread information on intellectual property and open licensing, both to the potential contributing lecturers as well as (ideally) fellow students. Ideally, this would have supported the development of a local OER community-of-practice, incorporating both student and staff actors to facilitate OER production.

Semi-structured interviews were held with the five students adapters to determine the nature of their materials acquisition and adaptation approaches, complemented by structured interviews undertaken with contributing lecturers to identify their experiences of the project. Where possible, the insights from the interview process were compared to an artefact analysis of the completed OER (as compared to the original teaching materials) in order for triangulation (Denzin, 2006; Patton, 1999) in order to determine the veracity of student claims of their adaptation activity.

Findings

The adaptive ‘moment’ – copyright clearance and intellectual property management

The copyright clearance aspect of the adaptation work proved to be relatively straightforward, with few students reporting difficulties with sourcing open equivalents of media objects (such as pictures). As many images used in the resources were decorative rather than illustrative, or were generic representations of the topic under question, replacing them was generally uncontroversial. Rather more difficult was their role as intellectual property educators and open advocates, and indeed a large number of the lecturers who declined to participate did so because of concerns about “being exposed” (King, 2016, p. 63) that the OER adaptation process would entail.

In contrast to the lecturers who declined to participate due to intellectual property concerns, the majority of those who did contribute accepted the most open Creative Commons licence (CC BY) without comment. However, many of these lecturers had been involved in other open projects and thus been exposed to open licensing beforehand. Post-project interviews with the contributing lecturers indicated that while negotiating the licensing was unproblematic, their knowledge of the specificities of copyright and Creative Commons was generally low or incomplete, indicating students were responsible for only partial knowledge transfer.

The publication ‘moment’ – technical editing

The technical editing process was similarly straightforward. As the majority of materials adapted were presentations or sets of notes, familiarity with basic Microsoft Office software was sufficient for modifying those elements of the files (typically spelling and grammatical errors, borders, and adding explicit Creative Commons licensing) that students felt empowered to adapt. Depending on the individual initiative of each adapter, other formatting and stylistic features were adjusted for visual consistency and coherence.

The one exception was Student 2, who worked primarily with video content in the form of recorded lectures. While this student faced multiple problems with the video software, which was prone to failure, these problems were amplified by the working relationship with the contributing academic which was characterised by long periods between meetings, frequent revisions on already-completed materials, and an increasing wariness over representationality by the academic. These can be explained in part by the more performative and intimate nature of video content and the

somewhat sensitive topics discussed in the recorded lectures. This increasing wariness eventually led to the completed OER videos being removed subsequent to the project’s completion at the contributor’s request.

The metadata process proved to be unproblematic, in that students readily grasped the concepts of metadata tagging and were assisted by the student coordinator in the final upload process. What did emerge from the post-project interviews with the lecturers was their disengagement from the publication process, particularly as pertained to the final upload to OpenUCT. The presence of an existing, closed-access LMS (a Sakai-based platform named ‘Vula’) with which lecturers were more familiar may have acted as a disincentive, as its functionality was well-suited to the needs of existing UCT students – the primary audience that contributing lecturers desired to reach (King, 2016).

The generative ‘moment’ – pedagogical engagement

Of the three adaptation categories (generation, adaptation, publication), both adaptation and publication are ‘agnostic’ in that the skills they require are not tied to any particular discipline. Therefore, for a project that focuses purely on adaptation, the disciplinary background of the student is less important than their ability to master the intellectual property and technical skills needed. In contrast, pedagogical development obviously does require disciplinary knowledge, and the degree of to which postgraduate students feel able to contribute in this area varied significantly.

Students’ involvement in the generative/pedagogical ‘moment’ of OER production was expected to be minimal as the adaptation was to occur on materials already used in teaching. In most instances there was indeed no pedagogical development, particularly when students worked on materials originating from other disciplines. In contrast to previous student-led adaptation projects (see Discussion below), students rarely made attempts to “expand the object” (Engeström, 2001, p. 149) by adding contextualising information that would make the resources more broadly understandable outside of the UCT context in which they were generated. However, given the resources under adaptation were often from (supposedly) context-independent disciplines, such as Economics, Mathematics and Physics, or dealt with particularly South African socio-political issues, the ability for such contextual adaptation was limited.

In two adaptation scenarios, however, students were more strongly involved in the original creation of the resources they were adapting. The resources (a set of skills-development tutorials, intended for a specific Humanities department but relatively generic in content) were developed by the departmental tutor group in conjunction with an academic. The two student adapters (S1 and S4) had both used the materials in their own tutoring, and so during modification into an OER were far more confident in their ability to contribute pedagogically to the final OER, adjusting the content based on their experiences of delivering the original materials. This mirrors the findings by Bovill, Bulley and Morss (2011) and Cook-Sather (2014) who found that the greater the student involvement in the curriculum design process, the greater their general pedagogical involvement.

Acquisition and community-building

While capable of providing valuable adaptation services, students were less well positioned to acquire materials for adaptation. Their ability and willingness to approach lecturers for materials were strongly influenced by the cycles of the academic year, particularly exam and vacation periods, which led to long periods where little or no acquisition or adaptation work could be performed. Lastly, confidence in approaching lecturers was highly variable, and several students indicated that their subordinate status penalised their interactions with lecturers, particularly from other disciplines.
Their ability to successfully acquire materials did not appear to be strongly influenced by the respective disciplines of the adaptor and potential contributor. Although the lecturers interviewed in the project expressed that a student’s disciplinary knowledge was a positive attribute encouraging them to contribute, in practice the students often adapted materials outside of their discipline, and occasionally even from different faculties. In these instances, all adaptation work was purely at the adaptation and publication moments, and involved no pedagogical development.

The autonomy of the student adapters in the Adaptation project proved to be both an enabling and constraining factor. Positively, it enabled students to integrate their project commitment with their academic responsibilities, which reduced fatigue and maintained their enthusiasm for the project. However it also relied heavily on highly-motivated individuals with strong people skills who were able to introduce the concept of OER adaptation, and the participating students indicated that a more structured, production-focused model with dedicated weekly or bimonthly in-house workshops set aside for adaptation activity would have improved their output.

**Status of completed OER**

Emerging from the lecturer interviews was the surprising finding that in many cases, the contributing lecturers had not incorporated the completed OER in their own teaching, or in extreme cases had not even viewed the OER records on the institutional repository after the project’s completion. This is however in line with the general disengagement or laissez-faire attitude towards the adaptation process exhibited by the lecturers. Student 3 noted that “[one lecturer] had received quite good viewership ... so I sent him my low statistics and he was quite happy that now people were using the actual material” (King, 2016, p.81) but also that “[lecturers] did not ask for statistics themselves” (King, 2016, p.81). In further discussion with the contributing lecturers, it was discovered that they had not received any sort of feedback from colleagues or departmental managers from engaging in OER production, and therefore did not see it as contributing to their academic profiles. Rather, they appeared to view their engagement as another means to access their existing student bases, in a similar fashion to their use of the institutional LMS platform.

S1 and S4 collaboratively adapted skill development materials emerging from the same department into OER. As departmental tutors, they were able to push the use of the completed OER by the tutorial programme, increasing their use. In contrast to the majority of the other adaptation instances, the closer relationship between the adapters and both the original material and the contributing department supported the integration of the OER product into departmental practice.

In sum, while adequately equipped to adapt and curate materials, the relative power disparity between the student adapters and the potential contributing lecturers and the pressures of the academic year served to weaken their ability to effectively acquire materials. When materials were adapted, in most instances the completed OER were not re-integrated into teaching practice but rather served as an additional mechanism for students to access course materials. Where the student adapters were more involved in the creation and use-as-educators of the original teaching materials, the completed OER were more easily integrated back into departmental practice.

**Discussion**

The findings of the Adaptation project can be productively compared to the findings of a similar project by Hodgkinson-Williams & Paskevicius (2011), also conducted at UCT by CILT, which similarly employed postgraduate students as OER adapters. In this study, students worked on materials originating from a single department with a history of internal, online
sharing. The study similarly found that students easily developed the requisite technical skills and found copyright clearance “easy and straightforward” (Hodgkinson-Williams & Paskevicius, 2011, p. 9).

Even though the students in the Hodgkinson-Williams & Paskevicius study worked within a single, pre-identified department with an existing history of sharing, their experience of acquiring materials was also not straightforward. Many of the same reasons for non-contribution were given, such as a lack of confidence (Hodgkinson-Williams & Paskevicius, 2013), but in addition, technical problems occurred in the acquisition process, as many of the files used in the department were created in LaTeX. Sourcing the original LaTeX files provided an early barrier that slowed the adaptation work, somewhat similar to Student 2’s experience with video files being far harder to adapt than document and presentation files.

In contrast to the Adaptation project, these students were more involved in the pedagogical development or generative moment, and performed a wider range of adaptation activities that were aimed at enhancing the educational quality of the materials. This may be due to their greater involvement in the developmental stage as co-creators, rather than purely adapters, of the original teaching materials, as the materials had been pre-identified and students were recruited directly from the department that provided the materials.

The similarities (relatively straightforward copyright clearance and curation activity, difficulties in acquisition) and contrasts (more pedagogical development) indicate that student experiences of OER adaptation are broadly similar, but subject to local peculiarities of discipline and context. It also suggests, given the common difficulties in acquiring materials, that more focus be placed on the pre-adaptation factors that influence the success of OER adaptation, and that projects interested in employing postgraduate students in this role look to the possible contributing lecturers first to determine what structural, agential and practical factors are at play in their choice whether or not to engage in OER adaptation.

**Conclusion: Students as OER capacitators**

Students can serve as quality-enhancing agents, but the forms of quality-enhancement that they are best suited for (curation, metadata and copyright-clearance) are often unfamiliar to lecturers who understandably focus on pedagogical quality (Alaniska et al, 2006; Masterman, 2015). The students in the Adaptation project were generally unwilling to even consider pedagogical work. Many expressed that they felt uncomfortable in even discussing altering pedagogical content with the contributing lecturers, and this occurred regardless of their disciplinary knowledge. The two instances where pedagogical adaptation was performed occurred when students were involved in the original material’s development stage. This suggests that while students acting as post-hoc adapters are less likely to make pedagogical changes, their confidence and willingness to contribute to the intellectual content increases the earlier their involvement in the production phase.

Employing students in a pedagogical adaptation role is also heavily reliant on their disciplinary knowledge. As it may be difficult to recruit from each department providing materials, focusing on the technical and publication aspects of adaptation allows for more flexibility in which students are employed, as well as their ease of replacement.

In summary, employing students in a co-authorship role for the pedagogical enhancement of OER requires:

a) Students with specific disciplinary knowledge;
b) Possessing high levels of confidence (and perceived as competent by the co-creating lecturers);
c) Recruited during the material development stage (i.e. at the production rather than adaptation moment);

d) Ideally involved in a co-instructional role (e.g. teaching assistants, tutors).

The ability of students to act as change agents actively driving OER innovation is limited. Finding sufficiently-positioned students may be difficult, particularly when adapting OER from a range of departments or disciplines. An alternative is employing students as *capacitating agents*. In this role, students (who do not need to possess specific disciplinary knowledge) serve to support existing OER production activity by assuming the burden of non-pedagogical adaptation activities, thus making it easier for lecturers to contribute materials. In this instance, disciplinary knowledge is less relevant than developing copyright clearance and curatorial skills. This facilitates recruitment, as students do not need to be tied to specific disciplines or Faculties in order to provide adaptation services.

Lecturers experimenting with this innovation should be cognizant of two time-related issues: firstly, that students do possess more time than lecturers; but their tenure at the university is likely to be limited to a 1–3 year span (of course, the percentage of post-graduate students will vary by institution). This particular combination can be harnessed by using students as ‘OER capacitators’, whose perspective as recent students can help refine the materials for greater clarity, and who can perform the technical and intellectual property skills needed to fulfil the ‘Open’ requirements of OER thus freeing up academic time to concentrate on the pedagogical enhancement of the materials.

Projects incorporating students in OER acquisition activity need to be cognisant of the constraints students experience, particularly around their ability to act as advocates for OER. A simpler way to include students is focusing more tightly on their role as adapters, supplemented with acquisition initiatives conducted by more senior institutional actors.

### Acknowledgements

I would like to thank Dr Glenda Cox for her support and guidance as the academic coordinator of the Vice Chancellor’s Open Educational Resources Adaptation Project.

This paper was presented at the 2017 Open Education Consortium Global Conference, held in Cape Town (South Africa) in March 8th-10th 2017 ([http://conference.oecd.org/2017](http://conference.oecd.org/2017)), with whom Open Praxis established a partnership. After a pre-selection by the Conference Programme Committee, the paper underwent the usual peer-review process in *Open Praxis*.

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*Open Praxis*, vol. 9 issue 2, April–June 2017, pp. 223–234
Developing Civic Engagement in Distance Higher Education: A Case Study of Virtual Service-Learning (vSL) Programme in Spain

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Abstract
Higher Education is demanding the need of a greater connection between its academic offer and the necessary civic engagement of the graduates. This has given Spain the opportunity, for just over a decade, to develop the methodology of service-learning, which combines both the theoretical and practical aspect of university learning with the practical development of solidarity and civic commitment of the students. At the Universidad Nacional de Educación a Distancia (UNED, Spain) we have designed an online service-learning proposal, based on the virtual exchange which occurs between the students from the UNED and the University of Porto-Novo (Benin), requiring practical classes of Spanish. The result favours continuing with this virtual service-learning project aimed at the exchange with other universities; strengthening the planning of the training proposal for the development of ethical competence and civic engagement; the design of solidarity service action that enhances global citizenship and intercultural dialogue, consolidates digital competence, etc., all in a virtual educational environment.

Keywords: Civic engagement; Virtual Service Learning; Higher Education; Open & Distance Learning; Global Citizenship; Intercultural Dialogue

Introduction
As a result of the Bologna Process, higher education is required not only to provide quality academic preparation but also to fully respond to the social, political and economic needs of its environment. The progressive complexity of human communities therefore entails constant reflection on the functions and purposes of higher education (García-Gutiérrez & Fuentes, 2016), and on how it is essential to integrate, in its founding pillars of research and teaching, the social, political and economic demands of its environment. This state of affairs has led to the development of another pillar in universities, namely university social responsibility (USR), which seeks to guide and deploy in teaching as well as in research and innovation a greater awareness of and connection with the sustainable development of society and its natural environments (Ruiz-Corbella & Bautista-Cerro, 2016).

This outlook raises the need for a greater connection between universities’ academic offerings (in terms of teaching and research) and employability and the civic engagement required of graduates. Moreover, in many cases, it has also been noted that many students are removed from professional experience for a large proportion of their studies. With this objective, and in parallel to the need to link theoretical and practical knowledge and for professional development and civic engagement, universities are developing an approach to social responsibility that banks on social innovation
that is not centred on profit but rather on promoting individuals. This focus is being crystallized in teaching methodologies that are based on and committed to civic engagement and the democratic development of societies. Innovation, academic quality and research are thereby strengthened through retaining a focus on the development of the individual, and not only on the pursuit of mere economic development.

This scenario has made it possible for Spain to introduce into the university classroom supportive service-learning (SL) over the course of more than a decade, combining both the theory-practice axis of university learning with the development of students’ civic engagement and support. This methodology, which has a long track record in the international context (like the USA or the Latin-American area), is undergoing a successful stage of consolidation and progressive institutionalization in Europe, and more specifically in Spain (Aramburuzabala, Opazo & García-Gutiérrez, 2016), above all thanks to the establishment of service-learning networks in various areas (related to both teaching and research). However, all these experiences—whether they have occurred internationally or closer to home—are taking place at universities with a face-to-face method of attendance and on-site projects, even if remote and technological resources are used on some occasions.

In this context, and based on a commitment to educational innovation, as a group of professors, most of whom are affiliated with the Universidad Nacional de Educación a Distancia (UNED), we have been considering the possibility of designing online service-learning initiatives. The origin of this initiative is a series of issues related to the development of ethical and civic competence. Is it possible to develop ethical and civic competence through virtual education? How can ethical competence and civic engagement be formed through a virtual learning environment? Is it possible to teach global citizenship within distance higher education? Would an SL project delivered by distance universities be viable? As a response to these questions, this paper presents an innovative pedagogical virtual service-learning (vSL) experience implemented at the UNED that was supported by virtual learning environments and made use of 2.0 technologies.

Our aim is to give our backing to and argue in favour of the possibility of an authentic humanist education in virtual and distance settings—one that is committed to the values of human rights and the development of a global citizenship, and one that is therefore removed from the trends of higher-education marketization, an issue that the Special Rapporteur on the Right to Education has warned against in his latest reports (Singh, 2015).

The Programme for Developing Civic Engagement in the Virtual Education Environment: An Overview

Virtual Service Learning, a new proposal

We will now briefly explain the meaning of “virtual Service Learning (vSL)” in order to explain the objectives of it that are most relevant to our project. First of all, conceptually, it has been pointed out that within research on SL there is no common and universally accepted definition of it. According to Furco (2012), there is a wide variety of contexts in which SL can be developed, as well as a wide range of subjects involved. The duration of activities is also a differentiating variable. However, the lack of an express reference to virtual educational environments does not mean that they are excluded from the scope of SL. Rather, it would be more appropriate to explain why it makes sense to talk about vSL, and why it is necessary to integrate virtual elements into the development of these projects.

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This conceptual opening up that allows us to talk about vSL does not mean, however, that we would accept as SL any type of practice or learning that was community based or experiential. That is why, at this point, it is essential to indicate our understanding of SL. Our departure point is the approach taken by Tapia (2005), who understands it as “a support service that is actively led by students and deliberately connected to learning content”. Our conception of vSL is also oriented toward this perspective. Indeed, we do not believe that it is necessary to establish a different definition. Instead, it is important to understand it as a different modality, in which the participation of subjects and the development of the project are technologically mediated (Waldern, McGorry & Widener, 2012). This technological mediation accompanies both learning and provision of the support service. Therefore, the definition of a “methodology that combines in a single activity the learning of content, skills and values with the realization of tasks that serve the community” (Puig Rovira, 2009, p. 9) is also perfectly acceptable for distance higher education institutions and shows that both distance and online universities can also offer SL projects using all kind of information and communication technologies availed.

**vSL at universities in Spain**

Despite the variety of SL initiatives and programmes from Spanish universities (figure 1), there has still been none that specifically caters to students enrolled in distance higher education. In response to this situation, our work focused on ascertaining how virtual learning scenarios could also promote such experiences. We emphasize that in many SL programmes 2.0 technologies are used, but none of these projects are planned as a service learning project in a virtual environment and with an international view.

We did so on the basis of our conviction that, as educators at HEI, these virtual environments should also be capable of promoting ethical and civic competence as well as methodologies for their development. Based on this perspective, and taking into account the particularities of distance education as well as the technological resources available to UNED, we created a project that contributed to the development of ethical and civic competence following SL methodology. The development of this competence was set, following the university’s

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1 There is only one distance university offering service-learning programmes out of the five Spanish online higher education institutions.
competences framework, according to two objectives: the development of global citizenship and intercultural dialogue.

From this perspective, we consider the university to be the most appropriate teaching scenario for developing in students civic engagement (McIlrath, Lyon & Munck, 2012) linked to global citizenship and intercultural dialogue. Specifically, global citizenship is obviously not considered to be a legal status. It is rather a moral practice linked to the idea of the unity of the human family, and it is therefore linked to the idea of responsibility as members of the same humanity. According to UNESCO (2015), a realization of this common membership is the first element of global citizenship. We intend to make use of 2.0 technologies to bring people and communities closer, with an awareness of the personal responsibility that we assume also in relation to geographically more distant realities. Civic engagement, following the philosophy of our time, thus extends in a cosmopolitan manner (Hansen, 2013). Moreover, the capacity for intercultural dialogue expresses a vision of the necessary internationalization of universities and their social responsibility based on a supportive approach and not only a commercial one. According to the Council of Europe (2008), intercultural dialogue allows ethnic, religious, linguistic and cultural divisions to be avoided and, furthermore, allows us to advance together and recognize our different identities in a constructive and democratic manner in accordance with common universal values.

vLS project UNED – ENS

This project was designed as a modality of a SL project based on virtual exchange involving, primarily, Spanish students from UNED’s Faculty of Education enrolled in fourth-year Social Education Degree and African students from the Ecole Normale Supérieure (ENS) of Porto Novo (Benin) who were enrolled in second- and third-year teacher-training courses for Spanish-language teachers. The design of the project sought to strengthen the oral proficiency of the Spanish-language students from Benin. Also, this project responds to the collaboration with the improvement of the Spanish oral expression that the students of Benin are learning, since they do not have options (scholarships and grants) to travel to Spanish speaking countries.

At the same time, the Spanish students gained a deeper understanding of other educational cultures and learnt first hand about their educational reality, pedagogical styles, methodologies, and so forth. This interaction enriched both academic communities, providing each with significant elements that supported their specific learning (Table 1).
The project was conducted on this basis over the course of a semester (in this case, October 2015 to April 2016). Personal and group work were undertaken through a series of online interviews and meetings, in which the African students from the ENS practised their use of oral and writing Spanish with native speakers, and in which the Spanish students gained a deeper understanding based on an intercultural perspective of the content of the subjects that they were studying. Each group of students (a total of thirty-five from the two institutions) produced interviews outlines on an autonomous basis and guided by a coordinator, and they planned and agreed upon a schedule for sessions, as well as upon the technological means to be used (essentially the messaging programs Skype and Whatsapp, as well as email (Table 2).
Specifically, the Spanish students prepared the content of the interviews, which focused on the educational issues of their course units. Beforehand, the African students had recorded a brief video presentation in which they indicated their interests with respect to the Spanish language. These videos and more relevant project information were made available on the project’s website (www.uned.es/aps). Both groups analysed and solved problems that arose during the semester. The problems were above all technical ones (lack of Internet access, lack of devices from which to establish a connection, and so forth), which indicates the digital divide between different regions of the globe. The teaching staff involved in the project limited itself to facilitating and organizing contact between the different groups of students, and to explaining the purpose of this methodology and online meetings and interviews. We must emphasize that, as is understood in SL, students are the real protagonists of this educational activity.

First learning outcomes from this vSL project

One of the most problematic aspects that we encountered (and that we have not yet solved) in the development of the project has been how to measure and/or evaluate acquired learning outcomes when they are of a moral and civic nature. Approaching the evaluation of ethical and civic competence is an unresolved issue: Is it measurable, and if so, how? First of all, it would be necessary to clarify the specific nature of the ethical-civic learning (virtues, abilities and competences) and, second, it would be necessary to identify the best way to measure them (García Amilburu, 2015; Curren & Kotzee, 2014). Specifically, in this edition of the project we took the view that the best way to access this learning experience would be a narrative method—that is, the students themselves would tell us, through a semi-structured report, about their own experiences. In this way, the students collected the information and their experience in a descriptive and reflective way in their field notes.

In terms of learning outcomes, three areas can be identified from the reports received: (1) learning related to different educational cultures, (2) learning related to the development of global citizenship and intercultural dialogue and, finally, (3) learning related to the development of communicative competence (which had not been expressly contemplated as part of the project for Spanish students). An unexpected learning outcome was related to technological competence (Table 3).
In the first place, and although the central terms of SL are learning and service to the community, we thought that we should also attach importance to the educational relationship (a link that is both important and intangible) established. This is the link between the learners, the service “providers” and the “receivers”. We took particular care when it came to this aspect, and we tried not to create an asymmetric relationship but rather one of reciprocity. As one report indicated, “They expressed their gratitude for the familiarity and equality that we treated them with, thinking that it could be due to the prejudices that we Westerners may have towards them (FN.1, p. 12).” Moreover, the students also revealed their capacity to solve problems caused by technical difficulties. As they themselves stated: “Only private schools have technological facilities and capabilities (FN.3, p. 7)” (Figure 2).

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<th>Table 3: Learning goals and outcomes in vLS project</th>
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Figure 2: A moment of interviews: Spanish student talking with Benin’s students
Some students brought to light how positive the exchange had been for understanding educational realities different to their own. The Spanish students were surprised that physical punishments are widely accepted in schools and that some diseases—autism or hyperactivity, for example—do not receive attention, with sufferers of them being described as “a bit crazy” (FN.1, p. 11). In addition, there were a number of issues such as unequal access to education for girls that the government has been trying to solve by funding tuition for girls but not for boys (FN.2, p. 6). Students also came up against the “digital divide,” since the students from Benin did not have computers or the Internet. Moreover, the students from Benin had the chance to find out about issues related to multiple intelligences and mindfulness as they are applied to the classroom (FN.4, p. 1). One student from Benin decided to continue investigating this subject, and she has proposed to complete her thesis on this topic (FN. Benin, p. 2). A more personal relationship emerged among students as they tried to get to know the culture and customs of each of the countries (Figure 3).

Another type of learning was related to intercultural dialogue and global citizenship. The most relevant thing for everyone involved was the dropping of prejudices, including “looking beyond” and experiencing the need to work from an intercultural perspective (FN.2, p. 13). In relation to global citizenship, we were able to identify the way in which it was defined in terms of equality: “They are citizens just as we are, and the improvement of their lives is our responsibility (...) This experience makes you responsible (FN.2, p. 14).” Another defined it as “the active participation of everyone when we get involved in jointly solving the problems affecting us (FN.3, p. 15).”

Finally, there were learning aspects related to the development of communication competences. The project aimed to offer participants from Benin interviews and dialogue in order to practice Spanish with native speakers. The students from Benin considered “classes” of this kind and hearing the “native accent” directly to be very rewarding, and they stated that they would like to continue to learn in this way (FN.Benin, p. 1). In addition, the project also helped them to understand Spanish and express themselves in it better, having attuned themselves to the different Spanish accents. One of the students wrote to his teacher, “Thank you for this experience. I was unsure about participating because I didn’t feel confident about my fluency... but Marta [a Spanish student] was a real ‘facilitator’ (FN.Benin, p. 2)”. In this regard, the project also cultivated other important elements for learning such as self-esteem and motivation. The Spanish students were also able to develop their communicative competence, though this aspect not had been contemplated as part of the project. One of the highlighted “active listening and feedback, allowing a fluent conversation with lots of participation. Objectivity in the intervention without prioritizing or imposing preferences and
interests (...), taking advantage of spontaneous interests and themes arising in communication; getting the conversation back on track, etc. (FN.3, p. 5).”

**Conclusion**

The main idea of a project like the one presented here is to explore its feasibility. It was not easy to create out of so many and such varied ingredients. These included: contact with a foreign university; students from two different continents; a planning of the educational offering to develop ethical competence and civic engagement; and a design of supporting service activity that took into account global citizenship and intercultural dialogue. All this had to be achieved, moreover, in a virtual and distance educational environment. For this reason, once the project was completed, we thought it would be necessary to both expand the number of participants in the experience (students and universities) and consider in more depth the elements of measurement and evaluation of results in relation to the learning and development of the supporting service.

In parallel to the educational potential that we have seen for this methodology in institutions that provide distance education, we also encountered communication-related difficulties. Hence there is a need to draw up different guides, documents and protocols that facilitate the monitoring and the development of the objectives of the project, in terms of both the students and coordination among teachers. In addition, a major constraint for the development of this type of project is the digital divide that can exist between countries. This relates not only to the availability of technical devices and media but, above all, to the speed and conditions under which the Web is accessed.

Despite the difficulties mentioned, this Project supports the possibility of promoting vSL programme, using 2.0 technologies to meet the needs of other groups, many of these located in other regions of our planet. In this new virtual scenario, distance and virtual universities have a very interesting field of action, as well as offering new learning possibilities to their students. In this way, SL methodology opens new ways of participation and formation which are unsuspected to virtual HEI.

**Acknowledgements**

We are particularly grateful for the involvement and coordination of María José García (teacher in the Department of Spanish, Ecole Normale Supérieure). Without her work and personal dedication, it would not have been possible to undertake the project.

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Open Praxis, vol. 9 issue 2, April–June 2017, pp. 235–244
Abstract

Registered nurses today are required to maintain a portfolio of evidence of their competence to practice. This evidence collection commences at undergraduate level with nursing programmes requiring portfolio's as assessments, which are often submitted in hard copy. This paper describes the outcome when a small group of tutorial staff introduced ePortfolio's into an undergraduate nursing degree. Evaluation of the effectiveness was collected through reflective conversations, which focused on issues that arise when implementing this change to a curriculum, along with improving understanding of ePortfolios and their use in practice. Routine student evaluations and the lessons learnt from tutorial staff reflections were used to inform the planning for wider implementation of ePortfolio's.

Keywords: Mahara, ePortfolio, assessment, undergraduate, nursing

Introduction

Within the three year nursing degree, students are required to maintain a record of their clinical placement attendance, objectives and achievements. This record comes together to form a portfolio of evidence of achievement which students often use as a foundation for an employment Curriculum Vitae on completion of their study. Students currently use a physical folder, in which documents are stored and handed in at the end of each semester for tutorial review and grading where required. This can be cumbersome for both students and tutors and an electronic platform for the portfolio was seen as a viable alternative. A project was developed to explore the student and tutorial staff experiences of introducing ePortfolio into an undergraduate nursing programme. The aim of the project was to identify strategies to support the integration of ePortfolios, identify issues as they arose and provide tutorial staff with strategies to support wider integration across the undergraduate nursing degree.

In nursing education the use of ePortfolio is increasing, with ongoing debate regarding the electronic platform to best support the ePortfolio and how the ePortfolio intersects with assessment processes. The project identified literature to support the rationale for using ePortfolio in health degree education, it's place in assessment, as well as some things to consider in regard to the introduction and support of an ePortfolio. Literature also highlights the usefulness of ePortfolio in supporting the student to develop critical reflection and writing skills. This paper reviews current literature, discusses the implementation of ePortfolio across two cohorts of students, explores key issues and identifies a strategy for the wider introduction of ePortfolio across an undergraduate nursing programme.
Literature Review

Portfolios are a common assessment tool used in undergraduate nursing education (McMullan, 2005; Oermann, 2002). Portfolios have to date been used as a collection of artefacts such as competencies, reflections and attendance sign offs, which have usually been submitted in hard copy (McMullan, 2005). Green, Wylie and Jackson (2014) discuss the notion of nursing education being the best place to start good professional practices. The undergraduate student nurses portfolio is an excellent starting point for introducing and developing these professional practices. These early portfolio’s act as a repository for recording professional development, career advancement and planning, as well as evidence for performance appraisal and competency assessment (Andrews & Cole, 2015; Curtis, 2012; Green et al., 2014). It is becoming more common internationally to introduce electronic or ePortfolios to students during their undergraduate education (Green, Wylie & Jackson, 2014). The benefits of using an ePortfolio in undergraduate nursing education are many and varied (Curtis, 2012; Garrett, MacPhee & Jackson, 2013; Green et al., 2014), as a repository for documents, artefacts and information, reflective journal, resume, and professional development record. The introduction of ePortfolio’s needs to be consistent with sound educational principles around assessment and learning styles.

Assessment and ePortfolio

Curtis (2012) discusses how the ePortfolio can be used for not only a platform for storing information, but provide “transparency of the learning process and facilitating visibility of learning and formative assessment” (p. 66), with feedback to students supporting their development and critical reflection skills. Formative feedback in ePortfolios can improve summative assessment results (Green et al., 2014). Andre and Heartfield (2007) discuss the need for clarity in regard to the intended learning outcomes of using portfolio’s in assessment and breaks this down into educational, staff development and regulatory outcomes. They go on to support the use of portfolios in the development of the learner, in particular “evidence based practice, professional accountability, application of theory to practice and responsiveness to change” (Andre & Heartfield, 2007, p. 58).

Assessments attached to ePortfolio need to consider how this will work in reality as it contradicts some of the other literature, which suggests that ePortfolios should not be used for summative assessment, however in saying this, it needs to be acknowledged that linking ePortfolio to assessment can be a strong motivating factor to encourage use (Andrews & Cole, 2015; McMullan, 2005). Andrews and Cole (2015) talk about the ePortfolio providing “assessment of learning and assessment for learning” (p. 569), with the ePortfolio becoming more of a “space for learning rather than an assessment space” (p. 571).

Learning styles and ePortfolio

Green et al. (2014) state that the use of an ePortfolio is consistent with different learning styles, auditory, visual, kinaesthetic and therefore should meet the needs of most students. The critical component is how the ePortfolio is introduced and how well supported students are in using the ePortfolio in such a way as it best meets their individual learning style. Nielsen, Pedersen, and Helms (2015) discuss how important the use of ePortfolio can be in supporting the student to develop alternative learning styles, in particular the power of learning through writing. Writing in a portfolio particularly as a journal is a powerful tool in support of ‘reflection-on-action’ (Green et al., 2014; Nielsen et al., 2015). Romova and Andrew (2011) describe the benefit of using a portfolio to develop writing skills and the benefit of reflection on gaining “key academic literacies” (p. 120). Further,
the effects of blogging and electronic journaling appear to have a positive impact on writing skills (Anderson, 2010). Garrett et al. (2013) identify the need for the portfolio to be constructed and owned by students, as it is the process of preparing the portfolio that promotes active learning.

**Electronic Platform**

The literature discusses the use of technology in undergraduate nursing education as having the potential to be stressful, causing anxiety for both students and tutorial staff (Andrews & Cole, 2015; McMullan, 2005), and therefore ePortfolios need to be introduced carefully with clear guidelines and good support structures. The stress of introduction can also be impacted by many variables that the educator may or may not have direct control over, i.e. IT access and reliability (Andrews & Cole, 2015), but can seriously disrupt the introduction of ePortfolio. The critical thing is that the implementation is not ad hoc, is supported both within the programme by sound pedagogy and the wider organisational systems and processes.

There are a variety of ePortfolio platforms available, however in New Zealand we have access to Mahara (https://mahara.org/), a free, open source ePortfolio platform that students and tutors can access through the Learning Management System (Moodle). There are varied opinions on the suitability of Mahara as an ePortfolio platform across undergraduate and postgraduate nursing programmes across New Zealand. Mahara is the only free specialist ePortfolio that is available as open source and after looking at other options being used nationally and internationally, Mahara was the option chosen. Mahara is supported internally and contains functionality relevant to nursing. In particular the functionality around journaling, recording continuing professional development and competency assessment through the latest upgrade which includes a ‘Smart Evidence’ function. All of these factors supported the decision to use the Mahara platform.

Andrews and Cole (2015) saw the ePortfolio platform Mahara as complex and only found that introducing small components of it at one time rather than all at once was a good way to proceed. Complexity increases over the three years, with the components developed overtime becoming a extensive portfolio of evidence for employment purposes, by the time the student has completed their undergraduate degree. This is supported by Bright (2016) who explored the relationship between Mahara as an ePortfolio, with social constuctivism, scaffolding and gradual introduction of assessment components.

**Project Outline**

Tutorial staff (n=7) working across the the first and second years of one nursing degree programme participated in the project along with a senior academic staff member (SASM) overseeing the project. There were three key stages to the project.

1. The SASM worked with the tutorial staff from the programme to introduce ePortfolios as a concept, facilitate training on the Mahara platform and plan the introduction of ePortfolio’s to the students. This session was facilitated by the organisation’s online educational support staff over one hour. Further support was provided one to one, by both the support staff and the SASM as required. It was expected that the tutorial staff would then continue to use the ePortfolio along with the students and reflect on their experience.

2. The SASM, along with the tutorial staff, provided ePortfolio training to the students in year one and year two. These were hands on sessions with students either using their own device or borrowing a device from a laptop bank that was made available for the session. The facilitators focussed on the journal section of the Mahara ePortfolio, asking students, who were about to go
into a clinical placement, to use the ePortfolio for regular reflections throughout their placement. These reflections could then inform the student's summative reflective assessment, which was due two weeks following their clinical placement. In addition to this, the students' competency assessment forms were made available in word documents to store and add to as they worked through their placements.

3. The final stage included tutorial reflections and student evaluations. The project team reflected on how their experiences of using and supporting students to use the Mahara ePortfolio. Two reflective sessions were held, one immediately post the initial training and introduction of Mahara ePortfolio to students. The second reflection occurred at the end of the semester following review of the student evaluations.

Student evaluations, which are routinely undertaken at the end of a course, were critical to ensure that the student experience was captured. These evaluations have standard questions, along with two additional questions that can be targeted for specific purposes. The project team asked the following questions relating to ePortfolio use:

- How did you find using the ePortfolio during your clinical placement?
- How should the ePortfolio be introduced into your nursing degree?

Thematic analysis (Saldana, 2012) was applied to the notes from the project team reflective sessions and student evaluations. This process identified the following overarching themes that informed the planning for the wider implementation of ePortfolio into the nursing programme—motivation and timing; training and support; technology and access.

**Evaluation Findings**

*Project Team Reflections*

Unfortunately most of the tutorial staff only attended the training sessions, with only two engaging in using the ePortfolio, themselves. Time factors including workload and assessment marking were important considerations for the tutors. As they did not have time to practice using the Mahara ePortfolio platform, their confidence suffered and they gave up trying. Several staff identified that the ePortfolio did not have the same priority for them, as it was not a summative requirement for students. Despite this, the tutorial staff could see the benefit for using the ePortfolio and were supportive of introducing ePortfolio into the programme the following academic year. The key consideration was that the ePortfolio platform was introduced early and linked initially to formative activities before being used for any summative assessments. Tutorial staff were clear that training and support needed to be well planned and ongoing.

Tutorial staff considered the benefits of introducing the ePortfolio slowly over three years, thus allowing students and tutorial staff to get used to the technology and how it is used in a staged and well managed process. This gradual introduction would also allow the ePortfolio to be linked to increasingly complex activities over the three years, as students and staff confidence develops in using the ePortfolio. Other benefits that the staff could see for using ePortfolio were that students have more control over how they used their ePortfolios, rather than the current prescribed hard copy portfolios that students were required to submit.

The project team identified that a lack of a shared understanding of the place of summative assessment and portfolios in general was also identified as something that needs to be worked through to ensure clarity for both students and staff. The project team were also clear that the ePortfolio needs to add value to the student learning journey, not just be added on top of what is already a full learning workload. How the ePortfolio is used needs to be aligned with the programme’s curriculum philosophy, evidence based and purposeful.
The actual platform of Mahara was hotly debated between the project team, as it is in the literature. The choice of Mahara as a platform we believe was a good one, however there are issues that need to be addressed by the organisation, relating to upgrading the current software, hosting and working out how students will access as an alumni.

**Student Evaluations**

Out of 30 students across year one and two, only two students had actively used the ePortfolio, one from each year of the programme. One theme identified was lack of motivation (n=18), with many having valid reasons for not finding the motivation to engage with the ePortfolio:

- Not important; No urgency
- Too occupied with other stuff
- Lack of understanding of Mahara
- Don’t know what to use it for, limited understanding
- Stressed out about the exams
- It did not seem like much of a priority
- Access (n=8), with these students identifying that they could only access the internet at school or through the local library as could not afford [the internet] at home

Students identified that the timing of the ePortfolio introduction was not the best for them (n=15), most identified that it would be better to introduce the ePortfolio much earlier in the programme. Training (n=12) was another theme, along with allowing plenty of time for the students to ‘play’ before they were required to use the ePortfolio more formally.

- Introduction and regular follow up sessions… lunctimes; have more sessions
- Sessions to play and familiarise
- Make it compulsory (n=5)

Another theme was for tutors to ensure repetition/reminders (n=10) in regard to using the ePortfolio. One student identified a interesting way to improve use: "make an app so it can be accessed easily through the phone and iPad".

**Discussion**

The ePortfolio was introduced to students during the second semester and just prior to their going on clinical placement. This was the case for both Year One and Two students. The timing of this was not ideal. Students had a variety of assessments and exams that they were working on at that time and this was identified as a barrier to them finding the time to use the ePortfolio. This was reinforced by the tutorial staff, who also stated that the timing was not ideal as they too had assignments to mark and clinical assessments to complete and therefore they did not really engage with using the ePortfolio. Both tutorial staff and students could however see the benefit of using ePortfolio, once they have had time to understand and integrate them into their programme. Peacock, Gordon, Murray, Morss and Dunlop (2010) described faculty barriers to the implementation of ePortfolios as including limited understanding of the tool, and “initiative fatigue” (p. 827). With any requirement to implement this type of change there needs to be staff development and support from the institution. This “initiative fatigue” was a factor in this project, both tutorial staff and students felt as though it was one more thing on top of what was an already busy workload.
It is clear from the literature that the place of the ePortfolio in assessment needs to be further articulated as to whether the ePortfolio is the assessment or a repository for assessment artefacts, of which components can be used for assessment purposes. The notion of ePortfolio as assessment was debated, both between the project team and other interested colleagues. There were mixed understandings of how ePortfolio and assessment should be aligned. The critical issue here appears to be how the ePortfolio is aligned with both the assessment, the curriculum and its overarching philosophy. Bright (2016) explored the relationship between ePortfolio’s (using Mahara as the platform), social constructivism and assessment. His analysis supported the need for ePortfolios to be introduced and supported by a software platform that was “mindful of the underpinning pedagogical theory” (p. 33). Bright went on to say that when our pedagogy, platform and learning activities are aligned, the learning experience is more meaningful. This alignment needs to be considered and clearly articulated before any ePortfolio is widely implemented.

**Next steps**

A proposal for wider implementation of ePortfolio has been submitted, as outlined in Figure 1. The nursing programme will explore in more details how ePortfolio can be incorporated into their curriculum to ensure alignment and added value. Introduction of the ePortfolio will see a gradual aligning with formative assessment processes initially, allowing students and staff to become familiar and confident with the electronic platform before it is used for summative assessment purposes. Once they are comfortable, each programme will add further complexity as students progress through the levels.

![Figure 1: Stages of ePortfolio implementation](image-url)
At each stage of introduction the programme staff will review how the ePortfolio continues to support student learning, rather than just adding to their workload. Further evaluations will be undertaken once the ePortfolio is introduced in order to continue growing our understanding of ePortfolio as a learning tool in undergraduate nursing education.

**Conclusion**

The benefit of introducing ePortfolio’s into an undergraduate nursing degree is that the ePortfolio can follow the student to subsequent years of education, building one repository to show the student’s development over time. The ePortfolio can than follow the student once they graduate and into their employment, where portfolios evidencing competence are, and will continue to be, required. Literature supports this, along with supporting the student to develop critical reflection and writing skills through the use of an ePortfolio. The aim of this project was to identify educationally sound strategies for supporting tutorial staff with the integration of ePortfolios into an undergraduate nursing degree. The key findings were directly related to ensuring that ePortfolios align with curriculum, add value and are purposeful. And that training and support for the introduction of ePortfolio, needs to timely and ongoing with both students and tutorial staff. This needs to be considered as a priority in the role out of ePortfolio to ensure that staff understand the rationale and can see the benefit of incorporating something new (or different) into the curriculum.

**References**


Digital Learning in Higher Education: A Training Course for Teaching Online - Universidade Aberta, Portugal

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Abstract

This paper uses qualitative evidence to describe, explore and discuss the progress of the online teaching training course taught at the Universidade Aberta to Portuguese and foreign professors of higher education institutions. As this is an entirely online course, its pedagogical design results from the combination of the basics of open distance education and network education using the Moodle 2.0 platform and other digital environments. The results point, on one hand, to a dynamic pedagogical design that addresses the need for continuous improvement, and, on the other hand, to the changes in the role of professors in virtual teaching and learning environments, and to the different and specific pedagogical strategies in need of adjustment. They also point to the strong presence of technological and pedagogical elements of innovation.

Keywords: Higher Education; Online Teaching; Open Distance Education; Networking; Innovation; Teacher Training

Introduction

The rapid and profound changes in today's network societies pose challenges and demands that need to be addressed in time by individuals and institutions. Lifelong learning and life wide learning have become essential and, in this context, Distance Learning and eLearning have an increasingly more important role to play in providing answers to those needs. As a consequence, higher education institutions have been implementing forms of teaching and learning that include online education, with the purpose of diversifying their educational offer and reaching new audiences. This brings profound changes to face-to-face teaching practices that seek to include typical distance learning approaches. However, this is a greater challenge that is not going to materialize by simply transposing the face-to-face teaching practices to network virtual environments, but rather imposes changes supported by research in teaching practices in virtual environments to enable us to integrate contemporary and emerging models that characterize the teaching and learning digital territories.

The results of the study on distance learning carried out by the Observatory of the Quality of Distance Learning and eLearning in Portugal have revealed a wide variety of distance learning forms and practices, and the absence of groundwork thought in this field in the respondent higher education institutions (Dias et al., 2015). This diversity can be put down to two factors: the lack of public regulation and the lack of professor's training. In Portugal, Universidade Aberta (UAb) is the only public distance higher education institution, with almost 30 years of experience and production of knowledge and innovation in the field of online network distance education. Aware of its social responsibility as a leading pioneer institution in this area in Portugal, it was felt that it would have to give an active contribution to the globalisation processes of education, arising from the profound technological advancements in recent decades that have had a considerable impact on the distance learning and network systems. Universidade Aberta has, therefore, taken on a collaborative role in sharing and putting its strategies on the renewal of pedagogical thought to the use of higher
education institutions –traditionally steered to face-to-face education–, an essential condition to act in virtual learning contexts (Dias, 2015). In this environment of support-oriented cooperation with institutions in Portuguese-speaking states and countries which seek to develop distance learning models, the authors of this paper –professors at the Department of Education and Distance Learning of Universidade Aberta– were asked to design the **Online Teachers Training Course (CFDO)**. This course follows the **Virtual Pedagogical Model®** of UAb (Pereira, Mendes, Morgado, Amante & Bidarra, 2007), specifically designed for virtual teaching and based on the principles of interaction, student-centred learning, flexibility and digital inclusion.

Our paper aims to describe, explore and discuss the progress of the course taught along its various editions. Although the quality of the course is constantly monitored, with six editions having been completed, we believe we now have consistent results to serve as the basis for analyzing aspects such as the pedagogical design of the course, the critical issues on the quality of online teacher training, and on the pedagogical innovation in digital territories. Our work will, therefore, build on these three perspectives to expand on theoretical issues and achieve empirical observation, as shown below.

**Theoretical perspectives**

In this study, the three-pronged analytical model breaks down the data on the online teacher training course which, although analytically different, are closely interlinked. These perspectives are: the pedagogical design of the course; the critical issues on the quality of online teacher training; and the pedagogical innovation in digital territories. First, we will briefly review the theoretical characterization of each perspective, emphasising, as already mentioned, that we will go into more detail when discussing the results.

The first perspective refers to the online teaching and learning processes in higher education. Where it relates to professor’ training, this becomes a particularly challenging exercise, as it requires specific innovative models, methodologies and strategies. This means that special attention must be given to the pedagogical design. For the online teacher training course, we chose to follow a “contextualized institutional design” (Filatro, 2004), in other words, with dynamic and recursive characteristics in which the design, objectives, development, implementation and assessment unfold in a spiral.

It should be made clear that we recognise the term ‘pedagogical design’ as being the most appropriate, as we believe it gives an idea of a more constructivist and humanistic teaching and learning process, therefore this is the reason why we will use it. This concept –pedagogical design– has been addressed by many authors (Ling & Marton, 2012; Häkkinen & Hänämäeläinen, 2012).

In the context of a dynamic pedagogical design, participants are involved in processes of “research and training” (Macedo, 2006; Reiser & Dempsey, 2007; Silva, 2015). That is, the educational process and the change in practices encompass a questioning, critical and investigative attitude. The main challenge is, therefore, to develop a educational offer defined by a pedagogical design that combines resources and technologies with the search for knowledge and understanding, capable of developing skills to allow all participants to become better pedagogical designers. One of these digital tools is the ePortfolio, which collects the compiled works on a webpage with links to other Internet resources (Moreira, 2010). Helen Barrett says “an ePortfolio (electronic portfolio) is an electronic collection of evidence that shows your learning journey over time” (2010, p. 6). Like Moreira and Ferreira (2011), it is also our opinion that ePortfolios or digital portfolios have a wealth of potential, as they can include static or animated images, videos and music to complement and enrich the text. The use of hyperlinks to other documents or to resources available online also enhance the ePortfolio and,
at the same time, emphasize the constant dynamics of knowledge and learning, which are of the utmost importance in our society today.

The second perspective of analysis concerns the critical issues of quality of online teacher training. The purpose of monitoring the quality of contextualized pedagogical design is to promote the knowledge about teaching and learning processes in an integrated manner, in a sense of continuous improvement (Filatro, 2004). This knowledge is intended to contribute to the development of organizational strategies in higher education, as we believe that more important than discussing face-to-face, semi-distance, or distance teaching courses, we need to discuss what type of education we want and what strategies are under way so that it can be achieved with excellent quality standards.

Although quality is a subjective concept that cannot be directly benchmarked, it has received much attention from researchers (see, for example, the works of Lim, Lee & Nam, 2007) and international institutions (for e.g., the European Quality Observatory). Ensuring an appropriate control and monitoring of the critical issues of online teacher training presupposes, in this context, paying systematic attention to and critically reflecting on the information obtained throughout the pedagogical design process, and also using that information to improve the quality of resources, e-activities and learning environments (Romiszowski, 2004).

Finally, the third perspective of analysis relates to the pedagogical innovation in digital territories, which presupposes that changes in culture and knowledge are supported by research in educational practices in virtual territories, where collaboration, social and cognitive roots and pedagogical mediation are the main means to achieve sustainable network learning. Such pedagogical innovation is based on a change of educational paradigm, characterised by connectivity, flexibility, personalisation, speed and fluency, and by the use of open resources and social networks.

To operate in teaching and learning scenarios in networked knowledge societies, the nature and requirements of professor’ training will have to take into consideration the training of competences with a view to inclusion, participation and collaboration in the joint construction of new knowledge (Dias, 2012). In other words, the scenarios that emerge from network learning go far beyond technological expertise, in that technologies themselves do not call to action, but provide a sustainable change for innovative and creative knowledge, supported by pedagogical dynamics that foster valuable opportunities for “learning to be and learning to learn” (Fullan & Langworthy, 2014; Massano & Henriques, 2016).

Pedagogical innovation in digital territories involves the development of skills in critical and creative problem solving, communication, sharing and collaboration, and relevant knowledge. These skills presuppose a particular focus on course pedagogical design, especially the critical issues of the quality of online teacher training. Before analyzing and discussing the data, a number of methodological issues need clarification.

Material and Methods

The main aim of this paper is to describe, explore and discuss the progress of the online teacher training course taught at Universidade Aberta to Portuguese and foreign professors of higher education institutions. As this is an entirely online course, its pedagogical design results from the combination of the basics of open distance education and network education (Dias, 2015; Aires, 2016) using the Moodle 2.0 platform customized according to the principles of the Virtual Pedagogical Model® of UAb, and other digital environments and tools.

The Virtual Pedagogical Model was specifically designed for the teaching and learning processes at UAb and is based on the following key principles (Pereira et al., 2007):
i) Student-centered learning, making students actively responsible for their knowledge building process.

ii) Education based on the flexibility of access to learning (contents and activities), without time or space constraints, according to the students’ availability. This principle is materialized by prioritizing asynchronous communication, in which space and time do not have to coincide, since communication and interaction is made whenever it is convenient for the trainee, allowing him/her to read, process the information, think about it, and engage in a dialogue or interact.

iii) Education based on diversified interaction between student-professor and student-student, or even between the student and the resources. According to this principle, the professor has various communication devices to plan and design according to his/her pedagogical strategy.

iv) Education that promotes digital inclusion, in that it helps adults (students) access and master technologies, who might not otherwise be able to develop those skills.

In this model the student is integrated in a learning community that develops pedagogical thinking, as a result of the participation and collaboration in the joint construction of learning (Henriques, Moreira, Goulão & Barros, 2016; Goulão & Henriques, 2015). The nature of this issue led us to consider an approach like Design Based Research (DBR), which relies on the concept of design experiments. According to Wang and Hannafin (2005), this research methodology in education enables an accurate and reflexive research to test and develop innovative learning environments. This methodology seeks to study educational problems in real contexts of pedagogical activity, combining theory and practice through collaboration between researchers and professional. The DBR is based on epistemology considerations that consider that the main goal of the research is to solve real problems, and at the same time it allows the construction of design principles that can influence future decisions. The study approach is qualitative and is based on data from the six editions of the online teaching training course already completed. The instruments that served as a basis for data collection were an online questionnaire survey and an information registration grid.

Analysis of results and discussion

The purpose of the online teacher training course methodology is to develop students’ pedagogical, technological and digital literacy skills. As the target audience is student professors of higher education institutions, it is important that they acquire these skills and, at the same time, be prepared for developing their own students’ scientific, technological and digital literacy skills in virtual teaching and learning contexts.

Several changes were introduced in the various previous editions with a view to innovative co-learning design (Henriques, Moreira, Goulão & Barros, 2015). This means that the pedagogical design of the CFDO is dynamic, in that it integrates changes, adaptations and innovations in its overall structure and in the strategies of each course module. Some of these changes include, in particular, the increased use of Open Educational Resources and free access social web software, which allowed for adjustments to the educational ecosystems built and designed by the course professors in each module; and the introduction of an ePortfolio built by the trainees, also using web 2.0 software, aggregating all the work carried out in the various course modules. This ePortfolio has three distinct and complementary functions:

i) The professors monitor the ePortfolio and assess it as to its contents.

ii) The trainees add their own thoughts about their training path to the contents and resources.
iii) Ultimately, the ePortfolio is an important working tool for the trainees, who, as professors, will have an archive of materials (contents, resources, e-activities) and their own thoughts on their own development (progress and setbacks, difficulties and strategies to overcome them, strengths and areas for improvement).

The results of the analysis of the pedagogical design of the online teacher training course point to adjustments needed to strengthen the approach to professional academic contexts, that is, the opportunities for continuous improvement are directly related with the skills to be developed. We therefore need to describe the structure of the course under analysis (Figure 1).

![Figure 1: Structure of the online teacher training course](image)

The course load is 10 ECTS (European Credit Transfer Credit System) over 17 weeks of training, preceded by an online adaptation module lasting 2 weeks that has a two-fold purpose. On one hand, it is intended to familiarise students with the learning environment and with the Virtual Pedagogical Model® of Universidade Aberta. On the other hand, the purpose is for the students to get used to being online students and to acquire the basic skills to attend the course. In addition to the adaptation module, there is also a cross-cutting module of digital tools that accompanies the student throughout the whole course, aiming to help the student explore and use different softwares, applications and Web 2.0 interfaces. The Digital Literacy module covers two main topics—Communication and Online learning—, which address the communication and interaction processes and the individual needs of each student, and the topic of digital literacies, which refers to the digital skills needed in ubiquitous learning contexts. Module 2—Innovation and Network Pedagogies—covers two main topics: Emerging Pedagogies, which focuses on theories of learning underlying Web 2.0-based pedagogical approaches; and Web Applications and Interactive Technologies, which explores the potential of pedagogical use of some Web 2.0 and social networks text, image and sound editing tools. The third module, Online Pedagogical Scenarios, covers three topics: Principles for the Design of Online Courses, which focuses on some essential components and principles in the design of online courses; E-activities, which focuses on the structure required for an active and interactive online training that caters for the students’ different ways of learning; and the topic Online Assessment Practices, which systematizes the challenges, contexts and assessment practices in online learning environments. Finally, the Project module, organized around the main axes behind an online course—planning, project, design, and
development. In all these modules, innovation also arises from the articulation between the various technological platforms used and the social web softwares, in a Blended (e)Learning system that make the educational experience even more meaningful.

Each module was structured by professors with expertise in the field, who work at the Department of Education and Distance Learning of Universidade Aberta, using pedagogical strategies that include findings from recent research in the field of online pedagogy. Moreover, expert professors of recognised merit in the areas, of universities from different countries and invited by the UAb also collaborated in each of the modules. The course trainees are professors who work at higher education institutions in Portugal and in other Portuguese speaking countries.

One of the course’s innovative factors is precisely that this training is intended for a group of trainees who are professors in higher education, where requirements are centred on scientific competence in a specific area of knowledge at the expense of pedagogical competences. The fact that this course promotes dynamics of interaction and collaboration between higher education professors based on the development of educational competences for online teaching makes this course truly unique. Some of these dynamics include the e-Portfolio referred to earlier, which made it possible to develop competences related to an active, constructivist, interactive and strongly collaborative learning.

Note that this is the current structure of the course, which has been changed and adapted since its early version consisting of 8 modules, until this latest version, which responds more adequately to the challenges and requirements of a course of this nature (Henriques et al., 2015). The challenge has to do with the activities that will enable the training of pedagogical designers and giving them the means for becoming more efficient in pedagogical design.

As argued by Hasan and Laaser (2010), higher education institutions are faced with needs that fall outside their traditional research, professional development and personal education competences. They must search for options for new audiences to be better prepared to respond to the new reality of our students (connectivity, speed, and space and time facilities) and also to ensure that such a response will help promote lifelong learning, but without compromising the quality of higher education.

These changes have, of course, implications for the professor, whose role now has been redefined and its duties call for the development of more complex professional skills. Chang, Shen and Liu (2014) point to the changes that an online training environment causes to the interactions between professor, student and content, and that professors are expected to take on a more facilitating approach. The teaching activity now consists of planning, resources and communication, and the professor’s role is reflected in the teaching, socialisation, management and integration of technologies (Goulão, 2012; Berge, 2001), and should promote the development of strategies that will lead to an active and independent learning process, in networked collaborative and co-learning environments.

It should be noted that in this course these professors take the role of students and that the virtual learning environments promote a more active role of these students while they build their own knowledge. This system is more effective in responding to the specific characteristics of learners, in particular their learning style. This also means that the formal virtual space must be organised in terms of type of learning materials and activities made available, which should be diversified so as to cater for the different learning styles of learners.

The works by Azevedo and Cromley (2004) draw attention to the implications that the pedagogical design of virtual learning environments have in the acquisition of knowledge, and that must also be taken into consideration throughout the course by the students, seeing that they are also professors. The students’ opinions are collected in their individual e-portfolio, prepared from the moment they attend the CFDO.
The e-portfolio enhances collaborative, network and lifelong learning. Sá-Chaves (2007) highlights 4 key characteristics of e-portfolios: 1) formative (by grasping the complexity of the training process in a contextualised way, it allows us to understand, in time and context, each part as being of interest to the process); 2) continuous (by grasping the dynamics of how the trainee’s personal knowledge increases); 3) reflexive (as the metacognitive reflection generates knowledge to allow the student to act in practical contexts or in contexts about itself); 4) comprehensive (by grasping the evolution of knowledge over time). We also add the focus on sharing and interaction, in particular between peers, creating new learning opportunities, allowing assessments and comments on the work done, which can be an added incentive (Amante, 2011). As Barberà and Ahumada (2007) state, the e-portfolio is a dynamic place where the processes of teaching, assessment and students’ personal development converge.

Due to its characteristics, the e-portfolio provides important information for the analysis of the critical issues of quality in online teacher training.

From the aspects shown in most e-portfolios we highlight interactivity and collaboration, as they help to shape the construction of knowledge in virtual environments. These are referred to as being both an advantage and a disadvantage. While the advantages are more obvious, relating to the professional and personal development in a collaborative way, and have a broad theoretical basis (Moreira, Ferreira & Almeida, 2013; Dias, 2008; 2012; Oliveira, Tinoca & Pereira, 2011), the disadvantages relate mainly to the need to adapt to work routines, organisation and construction of knowledge different to those that students are used to – both as students and as professors.

In respect of the analysis and discussion of quality-related issues, an explanation must be given on some of the model’s details and on the CFDO quality indicators. The latter is directed to the quality of educational processes, and is assumed to strongly influence the learning outcomes manifested in the desired skills. The purpose is to respond to a continuing need to improve the effectiveness and efficiency of answers, identifying, in due time, the functional weaknesses or the opportunities for innovation, while maintaining a relevant position in the current competitive market of specialised qualifications.

The model used contains process indicators (pedagogical design and others), instruments for collecting and monitoring information (survey questionnaire, information registration grid) and data analysis tools designed for the construction of knowledge, innovation and continuous improvement of quality based on scientific evidence (Henriques et al., 2016). In this phase, we should look at the weaknesses, strengths and opportunities for improvement mentioned by the students in the various spaces and at various moments of interaction.

One of the most relevant weaknesses is the lack of time to do the e-activities, especially when a balance must be achieved between work, family responsibilities and other daily business and the course requirements. Note that the professors responsible for the modules had also stressed the difficulty in meeting the deadlines. This is a central issue in eLearning theory and research (Hasan & Laaser, 2010; Henriques & Seabra, 2012).

Besides the time aspect, another weakness found is that some of the digital tools are difficult to use. Although technologies are always part of our daily life, digital literacy levels are low and some people find it difficult to master the basics of technologies, even more than we would expect in a group formed by higher education professors. This seems to be related with some difficulty in managing individuals with this social profile and highly demanding levels.

Generally speaking, the attitude of classroom professors to online teaching can condition the entire personal and institutional strategy to embrace this form of teaching (McCarthy & Samors, 2009; Martinho & Jorge, 2016). To reduce the negative impact of more antagonist attitudes to distance learning, some authors suggest the development of training actions that associate the pedagogical and technological
components, in order to enable professors to work successfully in virtual teaching contexts and network-based learning (Martinho & Jorge, 2016; Allen & Seaman, 2011; Oncu & Cakir, 2010).

As for the strengths identified by the trainees, the data collected show that the pedagogical design of the course is appropriate and its contents are both innovative and challenging. Interaction and support were also highlighted. The issues referred to by the students reveal a reflexive process associated with professional development (Goulão & Barros, 2014). Some students even defend that all higher education professors should attend the CFDO.

Finally, as regards the opportunities for improvement, we note the issues related to the proper management of time, to a greater concern with the usability of some technologies, and the increased interaction and feedback from peers, and between professor-students. The serious review of opportunities for improvement presented has allowed the introduction of new features to the course under analysis, in particular in terms of structure and pedagogical design, as already mentioned.

These innovations introduced arise from a great deal of reflection on the teaching-learning practices in which professors find support and inspiration, resulting in the creation of knowledge networks and collaborative work, the development of processes that facilitate learning, with implications in the organisational sustainability of the higher education institutions involved.

The focus on innovation involves making learning tools and resources available, creating environments conducive to knowledge, generating new learning partnerships, and anticipating innovative scenarios to generate change. Moreover, we need to continue to experiment, accepting that errors are an opportunity for learning and incorporating the views of the various stakeholders (Collins & Porras, 2002).

We therefore see innovation as the search for critical and creative solutions to solve problems, in order to adapt to the future. Accordingly, innovative knowledge is characterised by being challenging, transformative, practical, an instrument of power, liberating, interpretative, contextualised, reflexive, critical, collaborative, open, interdisciplinary, dynamic, questionable (inter)subjective, and argumentative. To train professors to create online courses and to teach online higher education courses implies developing skills so that they can be critical and reflexive, can question the purpose and contents of teaching and its practice, and produce new knowledge towards pedagogical renewal, in the classroom and in the transformation of his/her peers.

Conclusions

The online teacher training course is centred on the use of networks for developing learning spaces. To that end, spaces other than the Moodle platform were used for contacts, interaction and socialising. For example, social networks such as Facebook, Twitter or SOL (academic social network created by Universidade Aberta, Portugal). To facilitate the collaboration between students and professors, social web tools and Pedagogy 2.0 were also used to promote collaborative work, in spaces where they could “breathe”, without any barriers and physical or virtual walls. Pedagogy 2.0 is understood as the art or science of teaching using web 2.0 tools and is based on the intersection of three elements: Participation in network communities, Personalisation of learning experience, and Productivity related to knowledge creation (Lee & McLoughlin, 2007).

In short, the results obtained point to some weaknesses related to time management and to the difficulty in using some digital tools. The strengths relate to the pedagogical design of the course, in particular:

- How contents and resources are made available and organised.
- The dynamic and collaborative interactions with the web tools and the virtual environment, mobilized in coordination with the customized Moodle platform of UAb.
- The students’ critical authorship based on the learning experience.
- The co-learning work between students and professor, supported by a participatory pedagogy.
- The online communication adapted to end-users from various Portuguese-speaking States and territories.

The dynamic and flexible structure of the CFDO’s pedagogical design is open to receive the results of the assessment and research produced in each course edition, as well as the technological and pedagogical innovations and good practices in the field of distance education and network education. By using a sharing and collaborative network, online teaching enriches the virtual communities and the co-authorship processes and, at the same time, provides and adopts unique actions. It therefore allows global and local ties to be established between the participants, fostering innovation in higher education, seen as a number of changes that affect its strategic perspectives.

Despite the current situation of social and economic decline, there is an increasing openness of the national, European and transnational higher education system. At the same time, inequalities are more accentuated. While the experience of creating the European area for higher education is being critically reviewed, it seems difficult to forecast when learning distance education will be regulated in Portugal, in particular higher education. The various national and European university cultures have gradually embraced the idea that the university is a hub in the global network for the production, reproduction and preservation of knowledge, and is not longer an independent centre for the production and dissemination of knowledge (Teixeira, 2012). Against this background, we share the idea put forward by Teixeira (2012) when he defends that networked sharing of resources actually allows the increase of innovation and, consequently, fosters it.

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