Open Educational Practices in Higher Education: Institutional adoption and challenges[1]

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Open Educational Resources (OERs) and open education practices have the potential to lower costs and increase participation in higher education. One hundred and ten individuals from higher education institutions around the world participated in a survey aimed at identifying the extent to which higher education institutions are currently implementing OERs and open educational practices. The study explores the drivers and challenges faced by institutions considering the implementation of collaborative assessment and accreditation services for courses based on OERs, such as the OER university (OERu) concept. Differences between institutions that are participating in the OERu and non-members are examined. Results from the study indicate that although higher education institutions are aware of, and interested in, OERs and open educational practices, there are a number of challenges that need to be overcome to achieve their potential.

Keywords: open educational resources, OERs, open educational practices, open educational resource university (OERu)

Introduction

There has been considerable interest in Open Educational Resources (OERs) since the term was first adopted in 2002 at a UNESCO forum on the impact of open courseware for higher education in developing countries. Participants at the forum defined OERs as "the open provision of educational resources, enabled by information and communication technologies, for consultation, use and adaptation by a community of users for non-commercial purposes" (UNESCO, 2002, p.24). There is at present no universally-accepted definition of OERs in the literature. Most definitions focus on the nature of the resources to be included under the OER umbrella and the constraints imposed on the usage of OER materials. For example, the OECD (Organization for Economic Co-operation and Development) define OERs as "digitised materials offered freely and openly for educators, students, and self-learners to use and reuse for teaching, learning, and research. OER includes learning content, software tools to develop, use, and distribute content, and implementation resources such as open licences" (Hylén & Schuller, 2007, p.30). The William and Flora Hewlett Foundation adopt a similar definition (Atkins, Brown, & Hammond, 2007):

> OER are teaching, learning, and research resources that reside in the public domain or have been released under an intellectual property license that permits their free use and re-purposing by others. Open educational resources include full courses, course materials, modules, textbooks, streaming videos, tests, software, and any other tools, materials, or techniques used to support access to knowledge. (p. 4)

Geser (2007) reports that although definitions in the literature vary, they have one or more of the following core attributes in common: that access to OERs is provided free of charge, that content is licensed for modification, repurposing and re-use, and that the source code for educational systems or tools is available and open for re-use.

In an attempt to overcome the difficulties with defining OERs, Stephen Downes developed a definition of OERs that focused on the intended use of OERs, rather than on the essential components. Downes defined OERs as "materials used to support education that may be freely accessed, reused, modified and shared by anyone" (2011, para.1). This definition was chosen for the purposes of the research study being reported here as it emphasises the freedom to use these materials to support education, rather than the nature of the resources themselves.

OERs are part of a larger trend towards openness in higher education, which according to Yuan, MacNeill and Kraan (2008) is based on the philosophy that knowledge should be freely available on the Internet at no cost to the user. This trend includes, but is not limited to, open content, open source software, open courseware, open access and more recently, open educational practices (Hylén, 2006).

Open educational practices are emerging as the second phase of the OER movement (Ehlers, 2011). They are described as practices which support the creation, use and management of OERs through institutional policies, promote innovative pedagogical models, and respect and empower learners as co-producers on their lifelong learning path (Andrade, Ehlers, Caine, Carneiro, Conole, & Kairamo, 2011). This definition is largely focused on the use or development of resources. Further, it does not take account of policies that support the formal recognition and assessment of learning undertaken using OERs outside formal educational programs. For the purposes of this study, open educational practices will therefore be considered as policies and practices implemented by higher education institutions that support the development, use and management of OERs, and the formal assessment and accreditation of informal learning undertaken using OERs. The successful implementation of open practices has the potential to increase participation in higher education for learners, particularly those previously excluded from formal education opportunities (Mackintosh, 2012).

The Open Educational Resource University

The OER University (OERu) is conceptually a virtual institution designed to provide free learning opportunities for learners using courses based solely on OERs with pathways for learners to undertake assessment and obtain credit from accredited higher education institutions (Conrad & McGreal, 2012). The OERu arose as a result of concerns that existing models of education delivery will be unable to meet the future demand for higher education (Taylor, 2011). It is based on a community service and outreach mission to develop a parallel learning universe for augmenting and adding value to traditional delivery systems in post-secondary education (Taylor, 2007).

The consortium of institutions that are further developing the OERu concept for formal deployment in 2013 are referred to as the OER Tertiary Education Network (OERTen). The OERTen began as a partnership of 15 institutions in November 2011 consisting of 13 teaching institutions and two non-teaching institutions (Witthaus, 2012b). The consortium had grown to 21 international universities, colleges, polytechnics, and publicly-funded organisations based in Australia, New Zealand, Canada, the USA, South Africa, India and the South Pacific (Mackintosh, Taylor, & McGreal, 2011) when the data collection for the study took place. Any postsecondary institutions that have government organisations are permitted to become members of the OERTen and all partners sign a memorandum to formally support the OERu. The initiative is co-ordinated by the OER Foundation; an independent, not-for-profit organisation that works to support mainstream adoption of OERs in the formal education sector (Mackintosh, 2012).

The OERu provides content in the form of OERs to students at no cost to them. Such students will also be offered student support services, based on peer-to-peer learning support using social media technologies and an open community of academic volunteers (Mackintosh, 2012). To obtain formal assessment and accreditation for courses provided by the OERu, students will be required to pay fees at significantly reduced costs in comparison to full tuition fees. Students who obtain credentials by participating in OERu courses will be offered the option of using these credentials as credit towards formal qualifications offered by OERTen institutions.

Drivers and challenges of participation in the OER Movement

Higher education institutions are under significant competitive pressure to provide high-quality, low-cost educational experiences to greater numbers of students. The potential of OERs to increase access to educational opportunities by significantly lowering the costs of educational resources is considered to be a substantial motivator for participation in the OER movement, and the OERu in particular (Phelan, 2012). Previous studies have identified a combination of altruistic and strategic motives that potentially drive higher education institutions to adopt OERs and open educational practices (Yuan et al., 2008; Pena, 2009). Strategic reasons for adoption identified in these studies include the potential to increase the reputation and profile of the organisation, thereby providing opportunities for students to obtain first-hand experience of educational courses offered by an institution. Institutions that participate for philanthropic reasons may be motivated to contribute to the OER movement in order to ensure higher quality access to educational opportunities for previously disadvantaged students. They may also secure valuable opportunities for funding from social or governmental grants or encourage potential partnerships with other education organisations.

One of the primary challenges faced by the open education movement is that of long-term sustainability (Wiley, 2006; D'Antoni 2008). Many institutions are grappling with the potential social, cultural and economic implications of OERs and the changes that they need to make to current strategies and policies as a result. Another obstacle to institutional adoption of OERs and open educational policies is the potential lack of compatibility between the philosophy of OERs and existing institutional cultures and priorities (Friesen, 2009). This may result in institutional policy frameworks that provide insufficient resources to support the use and development of OERs in organisations. According to Yuan et al. (2008) one of the key steps that could be taken towards achieving sustainable use and development of OERs would be to encourage institutions, rather than just individual pioneers, to buy into the OER concept. This would enhance the potential for provision of institutional resources to sustain involvement with the movement. Olcott (2012) emphasises the importance of institutionalizing the management of OERs and open educational practices within current infrastructure and teaching and learning systems to maximise the benefits of OERs at an institutional level.

A number of studies (e.g. Ehlers, 2011; Bossu, Bull, & Brown, 2012) have pointed out that the potential of the OER movement to transform education practices has not been realised, largely because of a lack of focus on the policies and practices required to promote the concept of openness within higher education institutions. A recent study of participation in the development of OERs in Australia (Bossu, Brown, & bull, 2012) concluded that higher education institutions within Australia have been particularly slow to adopt OERs and open educational practices. This is largely due to immature policy frameworks at a governmental and institutional level, and ambiguity regarding copyright and intellectual property policies.

A report developed by the Open Educational Quality Initiative (OPAL) (Andrade et al., 2011) identified five main barriers faced by individuals when wanting to participate in the use and development of OERs: a lack of institutional support, lack of technological tools for sharing and adapting resources, lack of skills and time, quality or suitability of OERs, and personal issues such as lack of trust. All of these concerns are significant threats towards ensuring the sustainability of OER initiatives within higher education. Despite the research that has been conducted to date, there is still limited evidence to indicate what factors account for the successful integration of OERs and principles of open education into the policies of educational institutions.

Although many private and public institutions have successfully launched initiatives to use or develop OERs within their organisations or have commenced courses based on OERs, the formal recognition of informal learning remains a significant challenge (Phelan, 2012;). Yuan et al. (2008) warn that the increased accessibility of informal learning opportunities online will result in a greater need for competency-based educational frameworks to recognise and accredit student accomplishments. Richter and McPherson (2012) caution that it is not enough simply to provide OERs online. Rather, OER developers need to consider the cultural and contextual differences of potential recipients to ensure that resources are presented in a format that is of value to the learner within his or her own context. Additional human resources and funding is required to provide meaningful student support and formal

assessment services for courses based on OERs, which results in a cost implication for educational institutions. Olcott (2012) advises that, to ensure that OERs are sustainable, additional consideration needs to be given to the cost implications of developing and managing OERs within existing institutional business models.

Objectives and focus of the Study

This paper reports on the results of a survey designed to explore current perceptions towards OERs and the OERu model amongst stakeholders in higher education institutions. The study also explores the current practices of higher education institutions in supporting the use and development of OERs as well as their intentions in relation to engaging with collaborative initiatives such as the OERu. The survey was completed as a part of a research project conducted at the University of Southern Queensland, Australia, called ORION (Open Education Resources and Open Practices in Higher Education).

The ORION project had two primary objectives:

(1) To identify key institutional policies and practices that support the successful implementation of formal assessment and accreditation services for informal learning based solely on open educational resources, with reference to the policies and practices adopted by institutions that have committed to participation in the OERu concept.
(2) To enable institutions that are not members of the OERu to determine their compatibility with the OERu concept; in other words, to identify aspects of current policies and practices at their institutions that would hinder or support the implementation of sustainable assessment and accreditation initiatives based on OERs, in collaboration with other institutions.

The objectives of the study overlapped with a research project underway at the University of Leicester, UK, called TOUCANS (Testing the OER University Concept and Aspirations: a National Study). Both projects are aimed at determining the extent to which higher education institutions are implementing practices to support the formal credentialing of learning undertaken using OERs and perceptions of stakeholders in the higher education sector towards the concept of the OERu. The primary difference between these two studies is that the TOUCANS project is focused on the UK higher education sector, whereas the Orion project is focused internationally. As the foci of these two studies are partially aligned, both researchers decided to combine the development of the survey instrument and data collection activities to maximise response rates and reach of the two projects.

The research concentrated on the OERu as it is an example of a collaborative initiative within the higher education sector that that has commenced with the planning and implementation of accreditation solutions using OERs (Mackintosh, McGreal & Taylor, 2011). The survey was targeted at two groups of participants: individuals from higher education institutions that are officially members of the OERu network (also known as the OERTen partner institutions), and individuals from institutions that are not members of the OERu. The focus of this article is to report on the comparison of the results between the two groups. Findings presented in this article concentrated on knowledge of OERs and current perceptions towards the OERu concept, institutional participation in activities to support the development and use of OERs and a brief discussion of the challenges faced by participating organisations. A detailed discussion of the core issues faced by institutions attempting to implement OERs is outside the scope of this article.

Method

Participants

One hundred and ten individuals representing 83 education institutions, located in 29 countries participated in the research study. Participants originated mostly from Western Europe (United Kingdom & Ireland) (40%, n=44), North America (17%, n=19) and Asia (14%, n=15) followed by Australia or New Zealand (9%, n=10), Africa (9%, n=9), South America (7%, n=6), and other parts of Europe (6%,

n=7). Representation from a range of levels within organisations was obtained, ranging from practitioners (48%, n=53) including lecturers, teachers, trainers, educational designers, and project workers to researchers (25%, n=14), managers (8%, n=9), senior managers (14%, n=15) and executive management (11%, n=12).

A range of education institutions were represented, with universities forming the largest cohort (64%, n=68), followed by public organisations, not for profits or other non-teaching organisations (27%, n=29), polytechnic universities or institutes of technology (including TAFE) (9%, n=10), secondary institutions (8%, n=9), vocational training providers (6%, n=6) and 3 year community colleges (2%, n=2). Higher education institutions with on-campus students formed the majority of the sample (62%, n=61), followed by distance learning institutions (41%, n=40). Open universities consisted of 17% (n=17) of the sample and 14% (n=14) were institutions that had open entry policies for some courses. For these questions institutions were permitted to indicate if they belonged to more than one category. The size of education institutions, based on the number of students enrolled, ranged from small to large with 35% (n=33) consisting of less than 10 000, 22% (n=21) between 10 000 and 20 000, 28% (n=27) up to 40 000, and 16% (n=16) consisting of over 40 000 students.

Nineteen participants (23%) noted that their organisations were actively involved in the OERu network as a member of the OERTen, 53 (63%) were not members and 12 (14%) were unsure if their institution was a formal member of the OERTen. For the purposes of the analysis, participants who were uncertain about their institutions involvement in the OERu were grouped with those who were not OERu network members. OERu network participants originated from Canada (n=4), New Zealand/Australia (n=5), South Africa (n=2), and India (n=1). Table 1 provides a breakdown of the institutional characteristics of the sample by OERTen members compared to non-members. A chi-square test showed no differences between institutional characteristics and membership in the OERTen. The breakdown of the sample by level of the participant is shown in Table 2.

Table 1. Characteristics of participant's institution for the total sample, OERTen members and non-members

How would you classify the organisation or institution that you work for? (Select all that apply)	OERTen Member (n=19)		Non-members (n=91)		Total (n=110)	
	No.	(%)	No.	(%)	No.	(%)
Secondary institution	1	(5%)	8	(9%)	9	(8%)
Vocational training provider	4	(21%)	2	(2%)	6	(6%)
Institute of technology / TAFE / Polytechnic university	4	(21%)	6	(7%)	10	(9%)
University or 4-year Community College	10	(53%)	60	(68%)	70	(65%)
3-year Community College	0	(0%)	2	(2%)	2	(2%)
Non-teaching organisation	3	(16%)	2	(2%)	5	(5%)
Not-for profit organisation	1	(5%)	10	(11%)	11	(10%)
Public organisation	2	(11%)	11	(13%)	13	(12%)
Other	0	(0%)	4	(5%)	4	(4%)
Which of the following apply to your institution? (Select all that apply)						
Open university (open entry policy)	3	(19%)	14	(17%)	17	(17%)
Open entry policy for some courses	6	(38%)	8	(10%)	14	(14%)
Distance learning institution	9	(56%)	31	(38%)	40	(41%)
On-campus institution	7	(44%)	54	(66%)	61	(62%)
Other	5	(31%)	13	(16%)	18	(18%)
Approximately how many students are enrolled in your institution?						

Less than 10 000	4	(25%)	29	(36%)	33	(34%)
10 001 - 20 000	3	(19%)	18	(22%)	21	(22%)
20 001 - 40 000	4	(25%)	23	(28%)	27	(28%)
40 001 - 60 000	2	(13%)	6	(7%)	8	(8%)
60 001 - 100 000	1	(6%)	0	(0%)	1	(1%)
100 001+	2	(13%)	5	(6%)	7	(7%)

Table 2. Participant level for the total sample, OERTen members and non-members

Which of the following categories best describes the capacity in which you are responding?	OERTen Member (*n*=19)	Non-members (*n*=91)	Total (*n*=110)
	No. (%)	No. (%)	No. (%)
Executive management	4 (21%)	8 (9%)	12 (11%)
Senior manager	4 (21%)	11 (12%)	15 (14%)
Manager	2 (11%)	7 (8%)	9 (8%)
Practitioner (including lecturer, teacher, trainer, designer)	5 (26%)	48 (53%)	53 (48%)
Researcher	3 (16%)	11 (12%)	14 (13%)
Other	1 (5%)	6 (7%)	7 (6%)

The Research Instrument

An OERu compatibility survey was developed consisting of 24 closed and 3 open-ended questions to be completed by all participants. Many of the questions were derived from a series of interviews carried out with individuals from institutions participating in the OERu network as a component of the TOUCANS Project (Witthaus, 2012a). Input was obtained from the OER Foundation on the nature of the questions during the design of the survey. A draft version of the survey was made available to members of the OERu Network for review and commentary prior to data collection. The instrument included items that assessed:

- Demographics of the respondents.
- Institutional participation in current accreditation, student support and credit transfer policies and practices that were previously identified as supporting the adoption of OERs in higher education institutions (Witthaus, 2012b).
- Current knowledge about and interest in OERs and the OERu concept as well as current and intended participation in the OERu Network.
- Institutional involvement in the use, publication and development of OERs and intention to provide assessment services for courses based on OERs.
- Factors that impact on current and potential decisions to participate in collaborative OER accreditation initiatives such as the OERu.
- Success factors and obstacles to participation in assessment of OER-based courses.

An additional eight closed and five open-ended questions were included that were only to be answered by OERTen members which would provide information for the context evaluation of the OERu. Due to space limitations, responses to the OERTen context evaluation questions as well as institutional accreditation, student support and credit transfer policies are not presented in this article. Responses to items were assessed using a 5-point Likert scale with higher scores indicating a more positive response. A "Don't know" or "Unsure" option was included for most questions. These response options were excluded during the analysis of reported means and standard deviations and reported separately. Participants were provided with a number of open textboxes throughout the survey which could be used to provide additional commentary or information on issues. As the objectives of the TOUCANS study differed slightly from the ORION study UK participants were excluded from answering some questions. These questions are identified in the results.

Data collection method and Data Analysis Procedures

The survey was hosted online using the SurveyGizmo platform from June to August 2012. Information on the survey, including the survey link, was disseminated using *Twitter and Facebook* and through email invitation messages sent to three pre-selected discussion groups: The OER university group (oer-university@googlegroups.com), the OER-forum (oer-forum@lists.esn.org.za) and The Heywire8 group (heywire8-@googlegroups.com). Additional invitations were sent to individual representatives of higher education institutions in the regions, known to the research team. In addition, recipients were asked to forward the invitation to colleagues or expert contacts or disseminate the link via social media.   On completion of the survey all respondents received a PDF of their responses which they could use as a comparative tool to map the compatibility of their organisations with the OERu concept. A prize incentive of five $250 Amazon gift vouchers was also offered to all participants who completed the survey. More than one participant from each university was permitted to participate and the individual responses do not necessarily reflect institution-wide policy.
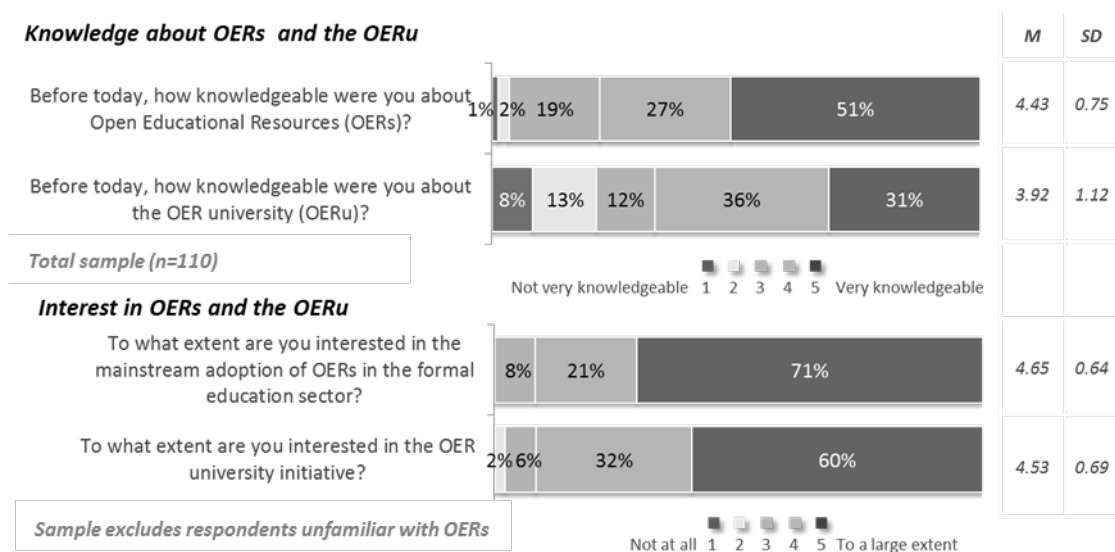
As the project was an open research project, a condition of participation was that participants agreed to dedicate their responses to the public domain. The data file was compiled in SPSS for Microsoft Windows and made available to all participants as well as on the project website, with personal information removed, as open data for reuse by the research community. A t-test for independent samples was used for comparisons of OERTen members and non-members on all scale items. A chi-square test for association was used for comparisons of the two groups on categorical variables. A significance level of .05 was adopted for all analyses.

Results

Knowledge of OERs and the OERu

The majority of participants perceived themselves as having a high level of knowledge of OERs. Eighty-eight percent (88%) considered themselves to be knowledgeable or very knowledgeable (selected 4 or 5 on a scale from 1 "not very knowledgeable" to 5 "very knowledgeable" and 67% were similarly knowledgeable about the OERu. Interest in the mainstream adoption of OERs in the formal education sector was similarly high, as was interest in the OERu. As the survey was distributed using the OERu mailing and social media resources self-selection bias of participants that are interested in OERs would occur. The distribution of responses for the total sample is presented graphically in Figure 1.
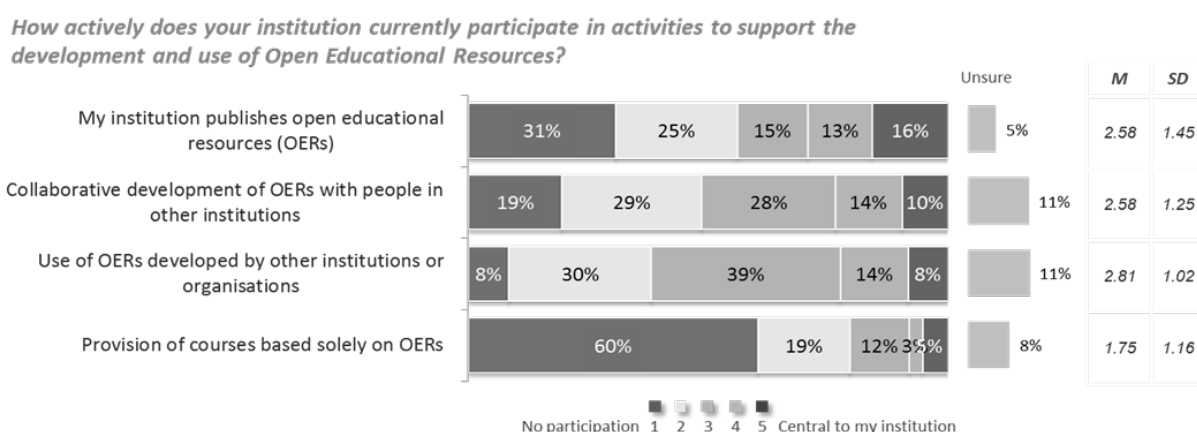
Figure 1: Knowledge and interest in OERs and the OERu

Participation in practices to support the development and use of OERs

Despite the apparent knowledge and interest of respondents, the participation of their institutions in practices that support the development of OERs was surprisingly low. Participants were requested to rate the participation of their institution in activities to support the development and use of OERs on a scale from 1 (no participation) to 5 (central to my institution). Three in ten (29%) participants represented institutions that were actively publishing OERs (option 4 or 5 on the scale), yet only 24% were using OERs developed by other institutions or organisations. Only 24% were involved in the collaborative development of OERs with people in other institutions and as few as 8% were presently providing courses based solely on OERs (See Figure 2).

Figure 2: Institutional participation in activities to support the development and use of OERs

Participation in these activities was expected to be higher amongst members of the OERu network; however, this was not the case. An independent sample t-test was conducted to compare the difference in responses of participants against those of institutional representatives of the OERTen. Table 3 displays the means and standard deviations for these variables by each of the two groups. OERTen members and representatives from other institutions had similar participation rates in the publication of OERs, collaborative development of OERs and use of OERs developed by other institutions or organisations. The only difference between the groups was the provision of courses based solely on OERs, with OERTen institutions significantly more involved (M=2.39, SD=1.46) compared to other institutions (M=1.53, SD=0.92, t(22)= 2.354, p=.028).

Table 3: Institutional participation in activities to support the development and use of OERs by OERTen members and non-members

How actively does your institution currently participate in activities to support the development and use of Open Educational Resources?	OERTen Member (*n*=19)		Non-members (*n*=62)	
	M	SD	M	SD
My institution publishes open educational resources (OERs) i.e. makes learning materials freely available on the Web under an open licence.	2.78	1.44	2.53	1.47
Collaborative development of OERs with people in other institutions.	2.84	1.21	2.58	1.23
Use of OERs developed by other institutions or organisations	2.71	0.99	2.89	1.08

Provision of courses based solely on OERs.	*2.39	1.46	1.53	0.92

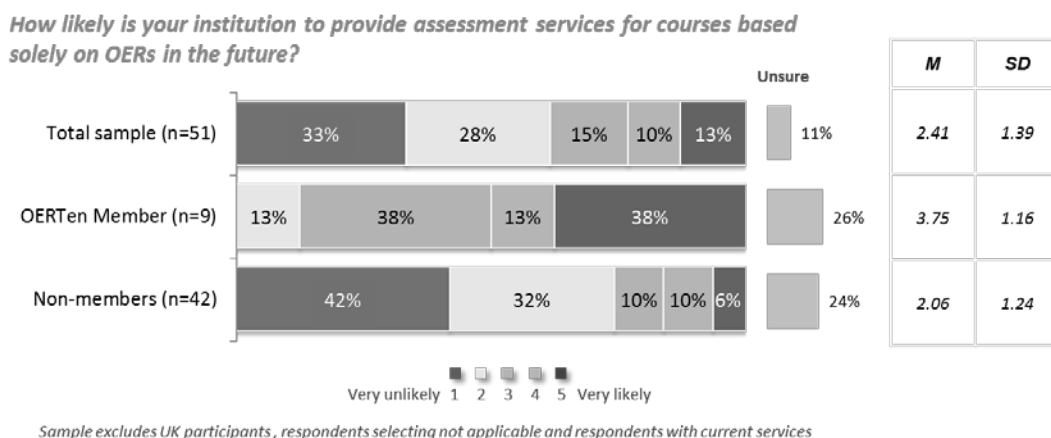Sample excludes UK participants & respondents selecting not applicable

 *p<.05

The reason for the lack of institutional involvement in the development of open resources is possibly because the OER movement is still in a pioneer stage and the institutionalisation of open practices will take time to implement. This possible explanation is supported by the following comment from a respondent:

> I wanted to answer many of these questions 'not yet'...This year we have been exploring collaborative development of courses with other institutions through the OER-u, we have developed a math course for the initial OER-u curriculum, we have been trying to figure out how to best use OER's in course development, about 10 people have taken short courses on open licensing to understand the implications of mixing the various types of licenses in course design. We are moving our main distance learning platform to Moodle. Our trajectory is toward openness. The challenge is getting there together.

Current and Future provision of assessment services for courses based on OERs

In response to the question about whether their institution currently provides assessment services for courses based solely on OERs, 4 participants (6%) reported that these services were currently provided by their institutions. Two of these were currently members of the OERu and two were not members. As anticipated, a significant difference was found between OERTen members and non-members for future intention of organisations to provide assessment services for courses based solely on OERs. Significantly more OERTen members represented institutions planning on implementing these services (M=3.75, SD=1.16) compared to other institutions (M=2.06, SD=1.24, t(37)= 3.474, p=.001). The results suggest, however, that a large proportion of OERTen members are still unsure as to the whether their institutions will support the assessment of OER courses, as 13% rated the likeliness of the provision of these services by their institution as a 2 and 38% as a 3 on a scale from 1 (very unlikely) to 5 (very likely). A third (26%) of participants indicated that they were unsure about their institutions intentions to provide future assessment services.

Figure 3. Provision of assessment services for courses based on OERs by OERTen members and non-members

How likely is your institution to provide assessment services for courses based solely on OERs in the future?

	M	SD
Total sample (n=51)	2.41	1.39
OERTen Member (n=9)	3.75	1.16
Non-members (n=42)	2.06	1.24

Very unlikely 1 2 3 4 5 Very likely

Sample excludes UK participants, respondents selecting not applicable and respondents with current services
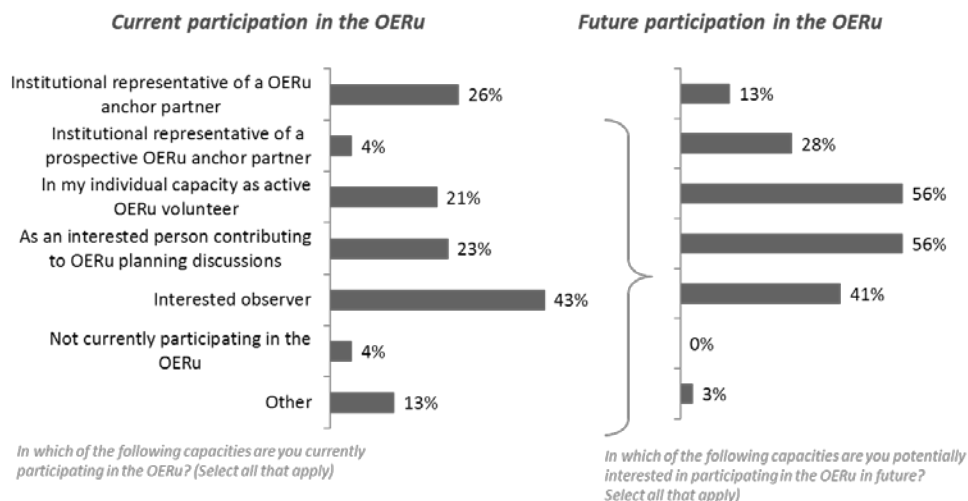
Current and intended participation in the OERu Network

Participants were requested to indicate their current participation in the OERu. The majority of

participants were interested observers of OERu activities (43%), 26% were representing OERu anchor partners (OERTen), and 4% prospective partners. The remainder were volunteers (21%), contributed to discussions (23%), or were not currently participating (4%). A number of the respondents not currently participating as anchor partners considered becoming more actively involved in the OERu in future.

Figure 4: Individual participation in the OERu

Current participation in the OERu

Institutional representative of a OERu anchor partner	26%
Institutional representative of a prospective OERu anchor partner	4%
In my individual capacity as active OERu volunteer	21%
As an interested person contributing to OERu planning discussions	23%
Interested observer	43%
Not currently participating in the OERu	4%
Other	13%

In which of the following capacities are you currently participating in the OERu? (Select all that apply)

Future participation in the OERu

	13%
	28%
	56%
	56%
	41%
	0%
	3%

In which of the following capacities are you potentially interested in participating in the OERu in future? Select all that apply)

Reasons for institutional participation in initiatives to provide OER assessment and accreditation services

The factors that would, or did, impact an institution's decision to join a collaborative OER accreditation initiative such as the OERu network were examined. For both the OERTen members and other institutions, the most important factor that respondents perceived to have influenced participation was the opportunity to be involved in an international network of accredited institutions and the second most important factor was philanthropy. The opportunity to diversify revenue streams by incorporating value-added services associated with free learning courses was perceived to be the least important reason for both groups. There were three significant differences between representatives of the OERTen and those from other institutions. OERTen members were more likely to be involved in the OERu to test OER collaboration models in a low risk environment (M=4.14, SD=0.77, t(34)=3.213, P=.003), as a low risk innovation strategy (M=3.92, SD=1.00, t(19)= 2.107, P=.048), and as an opportunity to increase local student enrolments from learners who start out by studying free learning courses (M=3.92, SD=0.67, t(37)= 2.165, P=.037).

Table 4: Factors perceived to impact on institutional decisions to participate in collaborative OER accreditation initiatives by OERTen members and other institutions

To what extent did/would the following factors impact on your institution's decision to join a collaborative OER accreditation initiative such as the OERu Network?	OERTen Member (*n*=19)		Non-members (*n*=91)	
	M	SD	M	SD
Participation in an international network of accredited institutions.	4.29	0.91	3.84	1.15
Testing OER collaboration models as a low risk project in a rapidly changing market.	*4.14	0.77	3.27	1.25
Philanthropic, i.e. widening access to more affordable education opportunities for learners excluded from the post-secondary system community as a service.	4.13	0.83	3.64	1.11

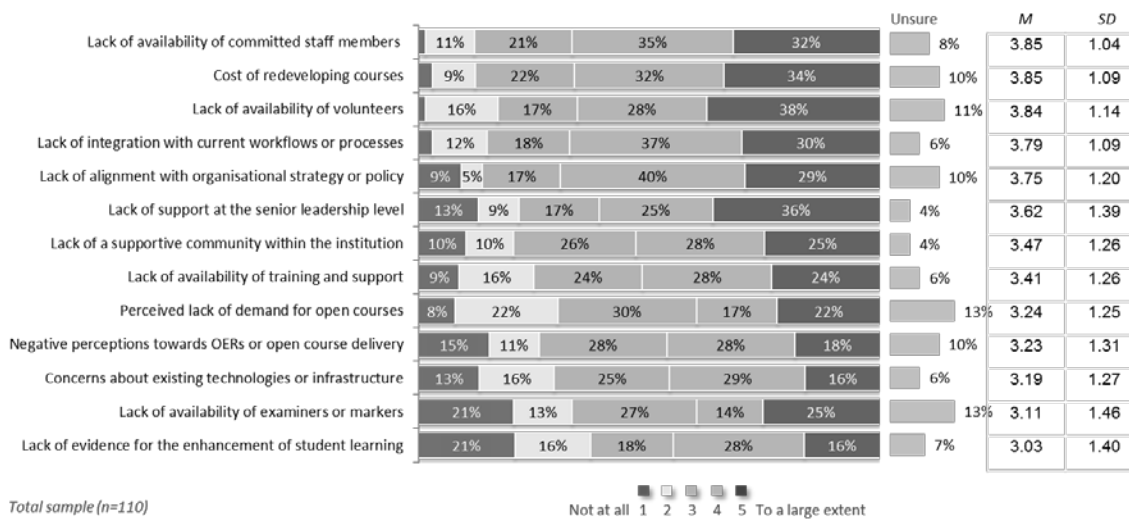|				
Potential to reduce cost and save time associated with the development of learning materials.	4.00	0.93	3.53	1.31
Using OER collaboration models as a learning environment for improving teaching practice in online learning at my institution.	3.92	1.24	3.52	1.24
Opportunity to increase local student enrolment from learners who start out by studying using free learning courses and later decide to complete their degree studies as fee-paying students at my institution.	*3.92	0.67	3.32	1.39
Low risk innovation strategy.	*3.92	1.00	3.21	1.26
Retain competitive advantage as OER collaboration models become more mainstream.	3.62	1.04	3.52	1.33
International marketing of my institution.	3.29	1.49	3.61	1.25
Opportunity to diversify revenue streams by incorporating value-added services (such as packaged / optional tutorial services in addition to assessment and credential services) associated with free learning courses.	3.23	1.17	3.19	1.41

$*p < .05$

Challenges faced by organisations participating in OER practices

Participants were requested to rate their perceptions of the factors that hinder the successful implementation of OER-based courses on a five-point scale from *not at all* (1) to *a large extent* (5). Participants indicated that their educational institutions potentially face several challenges. The most prominent (option 4 or 5) were considered to be the lack of availability of committed staff members (67%) and cost of redeveloping courses (66%). A lack of availability of volunteers (66%) and lack of integration with current workflows and obstacles (67%) were also considered to have a large impact.

No significant differences were found between OERTen members and non-members. This indicates that most participants, regardless of the extent of their current involvement with OERs and open practices, identify similar challenges with regard to availability of resources and commitment from senior leadership.

Figure 5: Challenges faced by institutions that hinder the successful implementation of the OERu model and similar initiatives

To what extent do the following factors hinder successful implementation of the OERu model or similar initiatives within your institution?

Factor						Unsure	M	SD
Lack of availability of committed staff members	11%	21%	35%	32%		8%	3.85	1.04
Cost of redeveloping courses	9%	22%	32%	34%		10%	3.85	1.09
Lack of availability of volunteers	16%	17%	28%	38%		11%	3.84	1.14
Lack of integration with current workflows or processes	12%	18%	37%	30%		6%	3.79	1.09
Lack of alignment with organisational strategy or policy	9%	5%	17%	40%	29%	10%	3.75	1.20
Lack of support at the senior leadership level	13%	9%	17%	25%	36%	4%	3.62	1.39
Lack of a supportive community within the institution	10%	10%	26%	28%	25%	4%	3.47	1.26
Lack of availability of training and support	9%	16%	24%	28%	24%	6%	3.41	1.26
Perceived lack of demand for open courses	8%	22%	30%	17%	22%	13%	3.24	1.25
Negative perceptions towards OERs or open course delivery	15%	11%	28%	28%	18%	10%	3.23	1.31
Concerns about existing technologies or infrastructure	13%	16%	25%	29%	16%	6%	3.19	1.27
Lack of availability of examiners or markers	21%	13%	27%	14%	25%	13%	3.11	1.46
Lack of evidence for the enhancement of student learning	21%	16%	18%	28%	16%	7%	3.03	1.40

Total sample (n=110)

Not at all 1 2 3 4 5 To a large extent

Respondents were given a number of open comment fields in which to provide additional feedback or insights into their responses. Participants emphasised the importance of support from senior leadership and integration with existing institutional policies and processes. The difficulties in changing entrenched mind-sets amongst university staff towards OERs was also highlighted by these comments:

> Senior management buy in, and we are now in the position of needing a university-wide vision for carrying OERs forward. This will need support and resources.

> The institutional mind-set is geared towards a traditional take on higher Education — that said, there is some steer from senior management towards video recording lectures and making those available. Academics tend to view this as a way to make their services redundant. My own view is that OERs need to engage students in a hands-on kind of way — which recorded lectures would not necessarily achieve.

> The university does not officially allow the publication of material under creative commons licences. This means that a question mark hangs over the use and, particularly, the adaptation of resources changed under creative commons licences. At the same time, there are pockets of people around the institution who are collaborating with other universities that actively encourage sharing resources. In a certain sense, this produces a dilemma ...

> Faculty and instructor buy-in to general principles of sharing and reuse. Penetration of these concepts is very low despite 9 years of incentive funding by our organization. We are only now seeing a shift towards more mainstream participation and expansive thinking.

> Far fewer than you would imagine and, indeed, no different to those I faced when trying to implement other educational technology in a f2f institution. Same old stories emerged 'giving away the family silver', 'I'm too busy' (aka am unsure/scared/anxious), 'how's this benefit me?', 'What's the minimum I have to be seen to do', 'What do students get from this', 'Students won't come to the lecture' (or equivalent) etc etc

An additional theme that emerged from the open responses, which was not addressed in the survey question, was a concern about quality. Respondents indicated that quality concerns about existing materials, development of new materials and assessment represented a significant challenge:

Exposing the university to quality threats in association with an unproven, flaky model perceived as a distant second best.

Quality concerns and costs would prevent our institution from going in this direction in the near future.

The impact of a lack of knowledge at an institutional level of what OERs are and how they can be used effectively was also emphasised, as was the need for more training and commitment from staff members. These comments reinforce recommendations that providing resources such as dedicated staff time as well as explicitly aligning open policies with institutional strategies and aims are key requirements for ensuring the sustainability of open practices and initiatives.

Summary of **Findings and Conclusion**

This article has discussed the preliminary results of a survey aimed at identifying the extent to which higher education institutions around the world are implementing open education policies and practices. Emphasis was placed on policies and practices for supporting the successful implementation of formal assessment and accreditation services for informal learning based solely on OERs. A significant focus of the article was an exploration of the differences between the responses of institutional representatives of the OERTen, who are involved in the collaborative development of the OERu concept, and representatives of institutions that are not members of this consortium. This study extends existing research about the policies and practices implemented by organisations to support the institutional adoption of OERs and the drivers and challenges experienced by institutions considering the implementation of open educational practices.

Awareness of OERs has been indicated in a number of studies as being a key inhibitor of participation in the use and development of OERs by institutions (Bossu, et al., 2012; Rolfe, 2012). Results showed that participants had a high perceived knowledge of and interest in OERs and that a large proportion (over 80%) had a similarly high perceived knowledge and interest in the OERu concept. This knowledge and interest does not, however, translate effortlessly into mainstream adoption of OERs in higher education institutions as less than a quarter specified that their institutions were involved in the use or development of OERs, either individually or collaboratively with other institutions. Less than a tenth of participants currently offered courses based solely on OERs and four participants represented institutions that currently provide assessment services for courses based solely on OERs. A large proportion of OERTen members are planning on offering OER assessment and accreditation services in the future, yet there are still a large proportion that are uncertain about the intentions of their institutions to follow through with the delivery of these services. Only a tenth of non-members are aware of plans within their institutions to offer these services in the future. These findings are in line with those of previous studies which have found that despite the support given by funding bodies and educational institutions, OERs have not been adopted widely in practice (Dimitriadis, McAndrew, Conole & Makriyannis, 2009).

The primary reasons given by OERTen members for participation in the OERu were opportunities to collaborate internationally, test OER collaboration models as low risk projects and philanthropic reasons. Participants considered the greatest challenges facing their institutions to be a lack of dedicated resources, including committed staff members and volunteers, as well as the cost of redeveloping courses. These findings align with the barriers identified by the OPAL report (Andrade et al., 2011) and confirm that the barriers to open practices have moved beyond accessibility and availability and are now more related to the lack of supporting components, particularly the commitment of resources.

These results support findings from the literature that the adoption of OERs and open educational practices within higher education policy frameworks is still in its infancy. There remain a number of challenges that will need to be overcome before wider adoption is possible. Additional support in the form of funding and dedicated human resources are required if OER approaches are to become embedded. There is a need for increased support from institutional leadership to strategically align open educational practices with current institutional policies. The OERu is one model which offers

collaborative assessment and accreditation services for courses based on OERs. The model is however still undergoing development and participating institutions are experiencing similar challenges to those of education institutions not involved in the process.

There are several potential limitations of the study that could influence interpretation of the results. First, the survey invitation was disseminated mostly to subscribers of mailing lists that focus on discussions about OERs and open educational practices. The participants are therefore more likely to be interested in the survey topic and a likely to have strong opinions on it. Second, the results represent the knowledge of individual respondents and may not present a comprehensive account of the policies and practices of participating institutions. Third, as a result of self-selection, participants are unevenly distributed around the world. Participants from the U.K. represent nearly half of the sample as a result of the alliance with the TOUCANS project. Despite these limitations the survey still provides valuable insights into the drivers and challenges of higher educational institutions that are aspiring towards active participation in the OER movement.

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