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EVALUATING HOW FIVE HIGHER EDUCATION INSTITUTIONS WORLDWIDE PLAN TO USE AND ADAPT OPEN EDUCATIONAL RESOURCES

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Abstract
The adoption of Open Educational Resources (OER) within teaching practice is currently under researched. Although many OER are freely available worldwide, little is known about who is actually reusing OER [1] and [2], and how they are using them. The Open University's *OpenLearn* initiative has been very successful in attracting over three million visitors since Oct 25th 2006. *OpenLearn*'s success is unsurprising as it provides a large amount of free content: 13,500 study hours of The Open University's course material transformed into OER and made available by April 2008. Other universities are now also adding OER content to the *OpenLearn* LabSpace. However, despite the growing availability of such resources, experience from *OpenLearn* suggests that the reuse of OER by academics within their teaching remains a challenge. This paper focuses on a small group of academics at Higher Education Institutions (HEIs) and their perspective of how they would use and adapt OER with their learners.

Keywords

Open Educational Resources, Open education, *OpenLearn* units, International, Cross disciplinary, Technology enhanced learning, Internet based technologies.

1. INTRODUCTION

Open Educational Resources (OER) have the potential to play a vital role in increasing learning opportunities for those from non-traditional educational backgrounds. OER adds a further option, in a climate where Higher Education Institutions (HEI) are adopting online learning environments to enhance their teaching and learning processes. An integral part of this e-learning agenda is the inclusion of a Virtual Learning Environment (VLE) such as WebCT, BlackBoard, or *Moodle*. These VLEs host course materials and communication facilities though often access is password protected. This suggests that many institutions develop and present their teaching materials in a closed environment. OER offers the opportunity to work in a more open way and to take advantage of the openness of others. However, 'not all academics believe that all potentially eligible scholarly content should be open' [3:p2]. This is in contrast with the OER movement, which provides free access to educational materials. Indeed sharing resources is advocated rather than hiding them, creating new knowledge rather than reinventing the same resource a number of times in different places [1]. However although academics are happy to share their work they are hesitant about giving all the rights away [1]. This paper will discuss how five institutions worldwide, each currently operating within closed environments, propose to use and adapt OER provided by The Open University in the United Kingdom (UK).

1.1 The online environment

The Open University in the UK (a distance learning university) has been developing supported open learning multiple media materials for 40 years. A proportion of these high quality materials (in excess

of 13,500 study hours) are available and accessible worldwide through the Open Content Initiative (*OpenLearn*). The William and Flora Hewlett Foundation provided funding for the *OpenLearn* project. *OpenLearn* opeates in an environment based on the *Moodle* course management system. It hosts twin Websites; a *LearningSpace* aimed mainly at learners and a *LabSpace* aimed mainly at educators. Units of material available on *OpenLearn* are taken from the original Supported Open Learning version of a course. In the *OpenLearn* context the materials called 'units' are standalone without the organised tutorials and formal assessment typically found in the originating course. *OpenLearn* provides similar facilities to a VLE but in an open and accessible environment. The focus of this paper is on the use of the units of material in the *LearningSpace*.

Units of material in *OpenLearn* are labeled at a particular HE level for worldwide use (introductory, intermediate, advanced and postgraduate). They vary in length between four and fifty hours of study time [4]. The learner can interact on an individual basis with the material in the twelve different topic areas or work in groups with other learners. A learner is considered to be anyone and everyone. *OpenLearn* provides an observatory, which affords the exploration of the range of activities taking place that can give partial data about types of use of OER but it remains difficult to identify the motivations for users and in particular understand the appeal of the site to other educators and teachers through observation alone.

2. APPROACH

This paper focuses on the educator and their perspective of how they would use and present OER with their learners. Will content, which is separated from 'Supported Open Learning', provide institutions' with an opportunity to review their own approaches and offer ways to bring open content into their curriculum? As a first step to understanding how learners under the guidance of academics or teachers could use OER the following questions are being addressed:

- How do educators plan to make use of OER with their learners?
- Do they plan to use the content as presented or do they want to change it?
- How will the OER be integrated or not with other educational resources in the types of closed environment mentioned above?
- How will academics assess the value of OER?
- How will academics plan to support the use of OER?

2.1 Aim and research methods

The aim of the reported research is to investigate how educators can use *OpenLearn* OER with their learners. By reviewing the ease or difficulty that academics find in seeking to adopt and reuse OER within their own teaching practice. The intention is to investigate the gap that is apparent between the OER available and the repurposing of such resources. This review is based on working with a small group of academics at HEI in Europe and Africa. The intention is to draw out a sample of attitudes and opportunities by considering how they might use, adapt and incorporate OER downloaded from *OpenLearn* within their own lectures and tutorials.

Changes may be required to internal procedures within institutions' to enable them to adopt standalone OER as part of their curriculum and assessment strategy. The content in itself, however well constructed, is only part of the education model – a survey of OU students carried out before *OpenLearn* started showed a desire for tutorials (64%), assessment (90%) and qualifications (89%). In practice there will be many informal learners attracted to free content without these motivations, however the survey raises important issues for whether separated content gives institutions' a chance to review their own approaches and to offer ways to bring open content into their curriculum. Indeed will institutions avail of the opportunity for reflection and an option to embrace OER.

The Open Participatory Learning Infrastructure (OPLI) model (see figure 1) considers that open content (including open code) needs to work through an overall infrastructure to then provide services to the communities [5]. At the *OpenLearn* 2007 conference the OPLI was referred to more straightforwardly as the Open Participatory Learning Ecosystem (OPLE), which is in line with more recent thinking [6].

The three areas considered in the OPLI are:
1. Transformation of scientific discovery
2. Engagement of universities to increase access to education
3. New cultures for learning.

Of these the second aspect is the most incremental on current approaches and is in part dependent on the attitudes of existing providers. This study is related to the second of three areas (under 'International Grand Challenges'), namely 'engagement of universities to increase access to education'. The more radical changes proposed in the paper are not dismissed but are not explored further here [5].

Figure 1 Enablers and collateral initiative context for the OPLI Initiative (reproduced here from [5]).
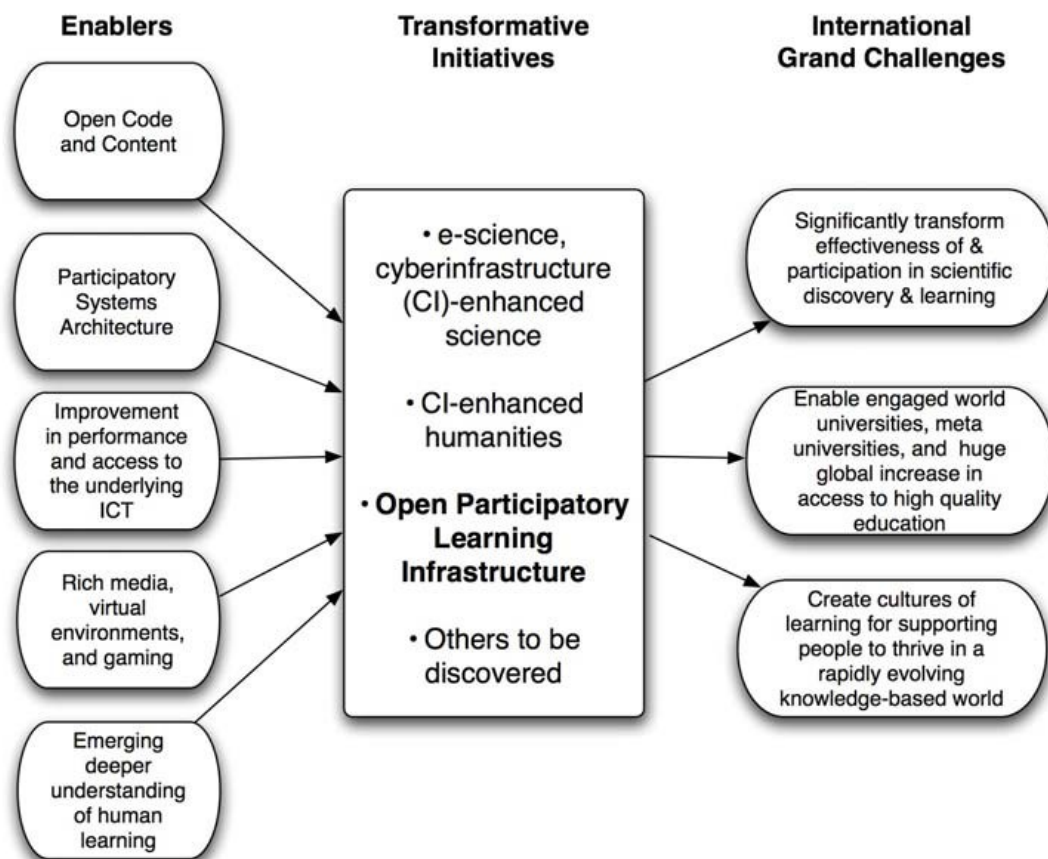
The study aimed to establish (across a small sample of institutions') whether recognition of these opportunities might arise to review their own approaches, what options might be considered and what ideas might emerge. The participants are based in the following institution type and country:

Three distance and campus-based universities
• South Africa
• Kenya
• UK (two participants responded)

Two campus-based universities
• One in Germany
• One in the UK

Therefore the project involves six academics from five (distance and campus based) HEIs across Europe and Africa:
• Three semi-structured interviews ([7], [8], [9]) were conducted face to face when distance was not an issue,
• Three personal on-line semi-structured interviews were conducted when the interviewer and interviewee were long distances apart. This technique is called the epistolary interview [10] and [11]. The six interviews took place between 15th January 2007 and 3rd April 2007. It is important to note that this data was collected between three and six months after *OpenLearn* started.

3. FINDINGS

The participants' responses have been analysed in terms of categories to allow them to be compared and contrasted. The first questions are related to their interest in the content itself for their learners:
> • Topics and units of interest which are available within *OpenLearn*,
> • Additional material that they would like added.

The participants' level of interest in reusing the material will be gauged from responses concerned with how the material would be used, presented, adapted, valued and supported.

3.1 Awareness of the existence of *Openlearn*

How had news of *OpenLearn*'s existence travelled worldwide? The majority of visitors to *OpenLearn* are from the UK and US with 90% being new visitors (not Open University staff or students). In terms of this review it is important to note the participants' familiarity or otherwise with the *OpenLearn* units as this could affect their responses to questions posed in the interviews. The six participants were asked if they were aware of the *OpenLearn* website. Three of the participants affirmed that they were aware of *OpenLearn*. They were based in South Africa, Kenya and Germany. The three participants, based in the UK were not aware of the *OpenLearn* website. These responses suggest that news of *OpenLearn* has travelled worldwide though a question still remains about why certain areas of the UK were unaware of *OpenLearn*. One reason might be that these interviews were taking place at an early stage (between three and six months) after the launch of *OpenLearn*. However those who were aware of *OpenLearn* (in Europe and Africa) already had some type of relationship with the Open University or awareness through a third party.

3.2 Topics and units of interest to the five different institutions

The participants were asked which of the eleven different topic areas (the Law topic area has been added since) within *OpenLearn* would be of interest to their institutions. All of the representatives reported that at least two of the eleven different topic areas would be of interest to their organisation, see figure 2.

Figure 2 Topics areas of interest to the five (HEIs)
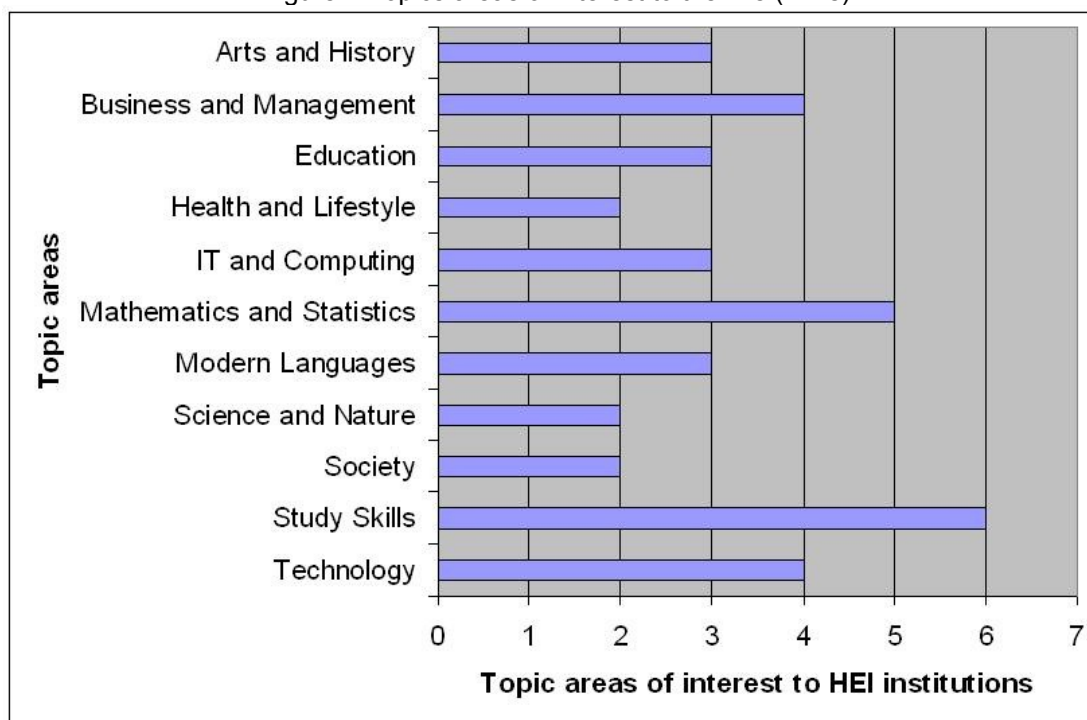
The Study Skills topic area was selected by all six participants, while Mathematics and Statistics was selected by five of the six participants. The preference for these two topic areas was further explained by one of the participants from a UK HEI. S/he said 'all students, visiting the Centre for Academic

[Support] require support in study skills (mainly writing) and, maths'. The Business and Management; and Technology topic areas were of interest to four of the six participants whilst Health and Lifestyle; Science and Nature; and Society were of interest to two of the six participants.

Each topic area holds a variety of units and participants were asked which units would be of interest to their students. Four of the six respondents selected specific units, see table 1. The university in South Africa (a coordinated response from a number of lecturers) made suggestions for each of the topic areas they originally identified although they did not choose specific units within the topics.

Table 1 Units (within topic areas) of interest to the HEIs

Topic areas	South African University	German University	UK University *one*	UK University *two*
Arts and History	Social sciences and didactics		War memorials & Commemoration.	
Business and Management	Education management, Law and systems, Education Organizations.	All		
Education	Teaching and learning, Teaching studies, Comparative studies	Teaching and learning with ICT, Teaching and course design in higher education, Professional development with ICT.		
Health and Lifestyle	Human skills			
IT and Computing		All		Crossing the boundary - analogue universe, digital worlds.
Mathematics and Statistics	Mathematics and the didactics thereof	All		
Modern Languages	Languages relevant to our country as well as the didactics thereof	English grammar in context.		
Science and Nature	Natural Science			
Society	Social skills, Learner support			
Study Skills	Method	All		ICTs: Technology news.
Technology	Technology in practice	All		Computers: bits & bytes, Living with the internet: keeping it safe.

The University in Germany selected units of interest for each of the topic areas they originally identified and indicated that all units would be of interest in five of the topic areas (Business and management; IT and Computing; Mathematics and Statistics, Study Skills and Technology). S/he also indicated that the *OpenLearn* material would fit within their present set of courses. S/he said 'the most promising approach would be in the area of Business and Management, because most of the topics available in *OpenLearn* are of interest in our local courses'. One respondent at the UK campus based university chose just one unit under the Arts and History topic area called 'War memorials and commemoration' however s/he indicated that some of the other topic areas s/he selected originally

would be of interest to other lecturers. 'Colleagues would find the subject specific material in 'Business and Management' and 'Modern languages' useful for their courses'. Another respondent in the UK chose subject matter across three topic areas that were relevant to his/her discipline of computing. The latter did not indicate any units in the Mathematics and Statistics topic area which had originally been indicated as a topic of interest.

It must also be borne in mind that participants did not have a long period of time in which to assimilate what was available. Two of the six respondents did not select specific units. The participant in Kenya explained that 'only academic staff in the specific disciplines can advise/decide on the specific courses that will be useful'.

Participants were asked to consider units that might be missing from *OpenLearn* in subject areas where they need more course material. Four of the six participants responded, see table 2. The university in South Africa listed a mixture of topic areas and units. The German university listed all twenty-five courses/modules that they teach within their three programmes of study and suggested they 'would be interested in available and suitable materials' for any or all of these.

Table 2 Additional units requested for subject areas were more course material is needed

South African University	German University	UK University *one*	UK University *two*
Education, Law, Quantative reasoning, Learner Support, Measuring and number systems, Life skills,	*Business administration* Banking, Information Management Systems, International Business, Management in Small & Medium Enterprises, Industrial Management, Management in Insurance, Trade Management, Health Care Management, Management in Non-profit & Sports Organisations, Real Estate Management, Service Management, Taxation & Auditing, *Engineering* Applied Computer Science, Electrical Engineering, Information Technology, Mechanical Engineering, Mechatronics, Business Engineering, *Social Sciences / Social Work* Pedagogy for Looked After Children, Social Work with Children & Young People, Childhood Education, Social Work with Older People & Disability, Social Services / Child Care & Families, Social Work in the Justice System, Social Work with Mental Health & Addiction.	What is plagiarism and how to identify it, Time management, Exam preparation, Tips on essay writing, Style guides/study guides, English as a foreign language or English as a second language, Reading and note taking, Units from the Institute of Educational Technology for accreditation to the Higher Education Academy.	Assembly code for micro controllers, A unit on Java, AI units, Problem solving.

The Lecturer at the campus based UK University suggested a number of units for the study skills topic area, see table 2 and contributed a number of ideas to increase interactivity. S/he wanted 'to see more material on English and literature' which is related to his/her discipline area. S/he would find it 'very useful to have quizzes for grammar' and 'nice to have a facility such as "check this page in the Guardian"'. In the case of 'Time management' s/he would like to see the inclusion of 'advice and exercises'. For 'Exam preparation' s/he recommended material 'related to a subject or at least divided between science and arts'. S/he thought that 'at lot of people could contribute to "Style guides/study guides" [as an area] of development in the LabSpace'. S/he explained that 'most of our students are from overseas' and 'English as a foreign language or English as a second language' would be useful units. A unit on '"Reading and note taking" would also be very good for learning how to learn'.
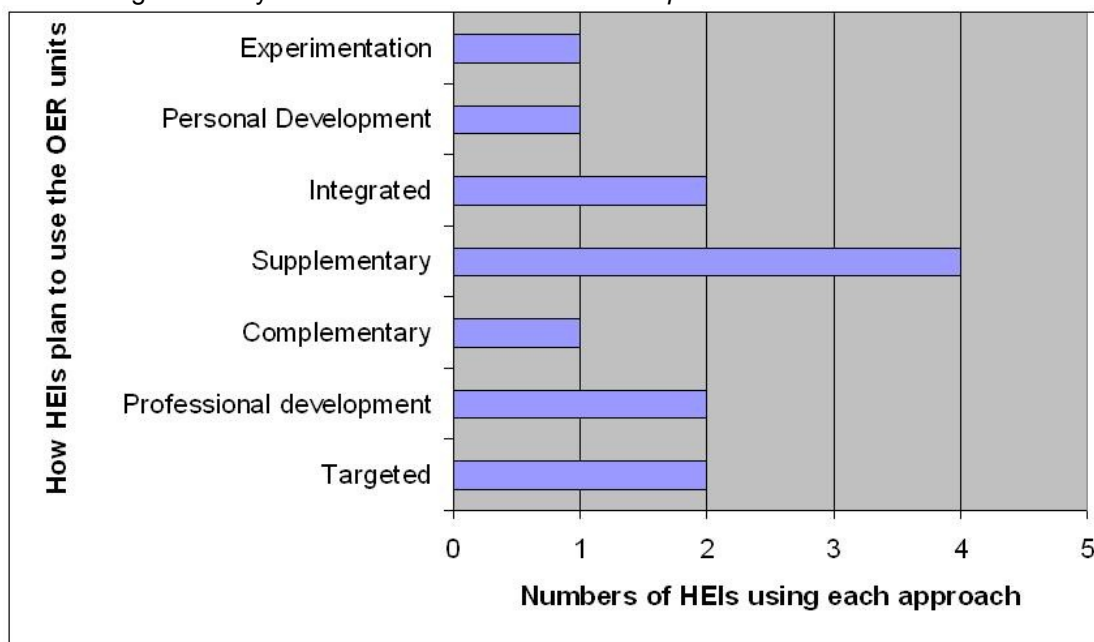
The lecturer at the 2nd university in the UK suggested four additional units, see table 2 and made a number of additional comments. S/he requested 'a unit on Java specifically aimed at Higher National Diploma students coming to us from other institutions. This unit would act as a bridge to bring them up to speed and in line with the level of our own students'. S/he would also like to see 'problem solving material to help students break problems down and learn from their mistakes'. S/he envisaged these materials being used to supplement courses'.

The participants were asked whether they would expect their learners to use the *OpenLearn* units in an online or offline mode. The six subjects based in South Africa, Kenya, Germany and the UK would encourage learners to use *OpenLearn* units in an online mode. One might expect that rural areas of Sub Saharan Africa with limited access to the Internet would be considering offline use in certain circumstances. However the University in Kenya suggested that distance learners and on-campus students could use the *OpenLearn* website. The university in South Africa explained that students based in urban areas would have access to the Internet but those in rural areas may not even have electricity.

3.3 Ways in which institutions could use *OpenLearn* units with learners

The participants were asked how they might use *OpenLearn* units with learners. A variety of responses were received from the six participants (see figure 3). The most highly rated use of *OpenLearn* units was seen to be as supplementary material. Four of the six participants suggested that the *OpenLearn* units would be very valuable as supplementary material for their present courses. Using the material as an integral part of the course, for professional development or for targeted support were each rated as important by two participants. Experimentation, Personal development and use as a complementary resource were each of interest to one participant.

Figure 3 Ways in which institutions could use *OpenLearn* units with learners

The use of *OpenLearn* material (as a supplementary resource) is clarified by a lecturer at a campus based university in the UK. S/he says: [It could be used in] 'lots of ways but no time as the study [is intensive]. It could be presented to the students as a side issue "if you are really interested in taking this further X resource is available on *OpenLearn* in the X Topic and the unit is called X". It would be something the student could go off and do on their own without anyone knowing and that would be better for them'.

A lecturer at the university in South Africa indicates how s/he would integrate the material. S/he suggests that they would 'connect your [*OpenLearn*] subject content to some of our modules'.

In terms of professional development: the university in South Africa saw the *OpenLearn* material as being beneficial to students; whereas the university in Kenya saw the *OpenLearn* material as being beneficial to academic and research staff.

The *OpenLearn* material would be used similarly for targeted support by two UK universities. 'The *OpenLearn* material could be very useful for remedial work with students for example English as a second language. For basic maths, for example percentages' at one UK university. In the second instance 'the Centre for Academic [Support] could create a link from the Centre for Academic [Support] website to the study skills unit. The website is partially designed for our part-time and distance learners – so that they can access **'targeted'** support – maths/stats would apply to some of them'.

The university in South Africa suggested *OpenLearn* could be used for 'downloading from Internet. Exposing students on an experimental basis to this type of learning' and to promote students personal development.

The university in Kenya could see that 'the School Based/Distance learners can be asked to access the [*OpenLearn*] website and use the materials they find relevant to their course' [as supplementary material]. Whilst 'regular students (on-campus students who receive face to face instructions) can also use the *OpenLearn* website as a complimentary resource'.

3.4 Whether *OpenLearn* units could be used as presented or need adaption

Participants' responses about whether they would use the materials as presented or wish to adapt them were fairly evenly balanced, see figure 4. Three of the six participants (from universities in South Africa, Kenya and Germany) would want to adapt the material to suit their situation in terms of language and to put the *OpenLearn* OER into the context of their present course materials.

Figure 4 Would *OpenLearn* units be used as presented or adapted?
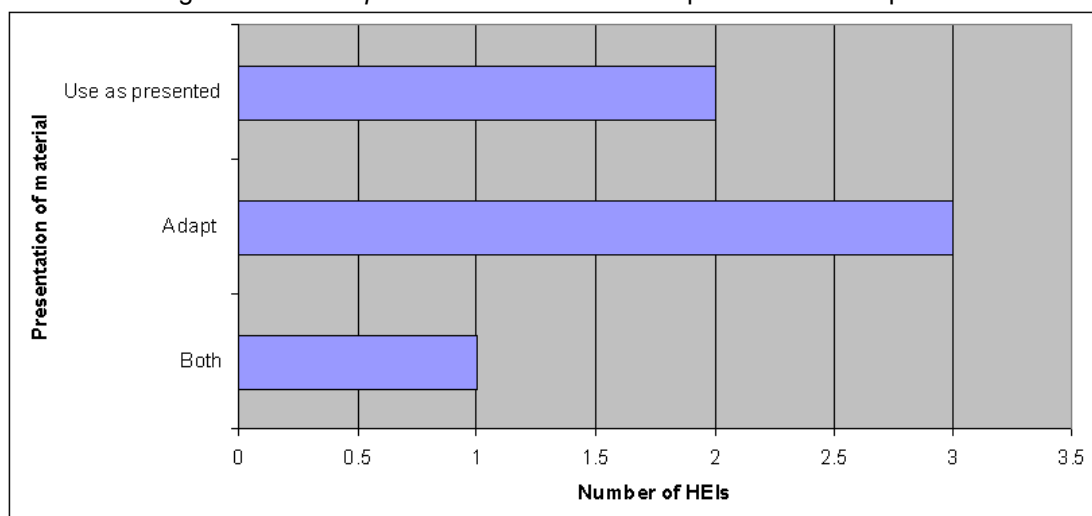
The participant from the university in Germany explained his/her position in terms of language. 'Although we try to "internationalise" our topics here, some of the material should be available in [the] German language. Our students would really like to learn in their own language (German), but the amount of English language content has increased in the past in certain departments. In most cases

English language would be ok'. S/he also indicated that 'some of the materials we've seen are a little too "text-oriented" and hard to follow when read on a computer screen only; maybe we would try to re-structure some topics in smaller units?' The participant from the Kenyan university echoed this point saying that s/he would not necessarily [use the *OpenLearn units*] as posted on the web'.

Those interested in using the *OpenLearn* units as presented (two participants at the same UK University) felt that there was no need to adapt the material and they would select particular sections of interest. 'I would not change the units… as they represent an additional 'tool' for students that they could access autonomously. 'Tailor-made' material is available to them also.'

One participant at the campus based UK university said 'It's a fantastic set of resources and the fact that you can change and adapt them is very useful'. However s/he suggested that 'with little time I would probably do a mix of both' using the material as presented and some adaptation.

The participants were asked how their institution might adapt *OpenLearn* material (not supported by tutorial guidance) for use within courses. Five of the six participants responded giving a variety of reactions. Three of the institutions (universities in South Africa, Germany and the UK) indicated that they would adapt the *OpenLearn* units for use as an additional resource (this reiterates responses made above about usage of material in a supplementary fashion). The participant from the Germany University suggested that 'the minimum approach could be the offering of OU courses as an (optional?) add-on for the classroom-based events'. The South African University indicated that adaptation of units would depend on which modules the *OpenLearn* units were destined to support. S/he also indicated that the units were 'user friendly' as an additional resource, which suggests that they do not need to be supported by a local tutor. Language was given as a reason for adaptation by two universities. For the South African university the level of the language was the key consideration. 'Language must be on the level of the student'. Whereas for the UK University it was the actual language that the material was presented in that was the consideration. S/he would 'take account of English as a second language [and] make [units] more targeted towards particular courses. Chinese and Japan students struggle the most. If we want them to learn English, then I don't know if it would be helpful or detrimental' for them to have material in their own language. The university in South Africa was keen to adapt the material to local needs. The *OpenLearn* units 'must be usable for our students [with] … relevant topics and issues … to South Africa'. S/he could also envisage some *OpenLearn* units being embedded within their set of courses. The Kenyan university highlighted the need for guidance for both their students and their academics, which suggests a support requirement. 'Academic staff would be expected to guide learners on how to use materials. Academic staff too may require to be taken through an induction programme on the use of *OpenLearn*'. One participant in the UK reiterated that s/he would not adapt the material at present (because of a lack of time) but use it as presented.

3.5 How academics would assess the value of OER

The HEI representatives indicated how they would assess the value of *OpenLearn* material for learners. Two participants indicated that they would gauge the quality of the material through feedback. The interviewee from the South African university was more specific saying that they would use assignments, interviews, student questionnaires and facilitator feedback. The participant from the Kenyan university suggested that the academic staff alone would be asked to review the material. Only one participant (UK based) suggested seeking both lecturer and student feedback and using performance measures. The university in Germany found it difficult to agree how they would assess the value of the material as the university was in the 'early phases of implementing eLearning'.

3.6 How academics plan to support the use of OER

Institutions were asked to consider the possibility of an external body providing tutorial support and assessment for *OpenLearn* material. This appeared to be a difficult question to answer in the time that the participants had to consider it. Three participants (in South Africa, Germany and the UK) thought that such discussions were feasible though they could not say more. The Kenyan University felt that 'this may be necessary and more specifically for the distance learners. The University would, however, take charge of quality assurance'. Two participants from the same institution in the UK gave differing responses, illustrating that policy and practice has yet to be established for how OER will be used and supported. One participant felt that the university 'would consider providing tutorial support as a

franchise agreement. An external body could not be considered for assessment, as it would cause too many problems'. The second participant felt that it was unlikely that an external body would provide 'tutorial support – additional costs would mitigate against it'.

4. LIMITATIONS AND CONCLUSIONS

The participants were contacted at a busy time (mid way) in the academic year when they did not have much time available. OER are still a relatively new resource. Contacting the participants between three and six months after the launch of *OpenLearn* meant that it was too early to ask users to identify specific cases of how they might use, reuse or adapt *OpenLearn* units.

The findings convey an overall feeling of needing more support from the participants home institution and OpenLearn in terms of time:
• To investigate what are useful elements of existing OER to reuse as part of a teaching programme.
• For training in how to adapt OER
• To physically adapt the OER to local needs

All participants were very keen to use the *OpenLearn* OER. At least two participants were interested in units from two topic areas. Particular interest was shown in Study Skills; Mathematics and Statistics; and Business and Management topic areas. Three of the six participants identified units within topic areas that they would be interested in using with their students. Four of the six participants identified units that they would like to see added to *OpenLearn* to improve their curriculum offering while benefiting their students. One lecturer suggested additional activities that s/he would like to see included.

Participants reported that the OER would be used primarily online and for supplementary support. Though integration of the OER in the curriculum; use for targetted support and professional development were other strong possibilities.

Participants responses were fairly evenly spread between using the *Openlearn* OER as presented or adapting them. The main reasons for needing to adapt the material were cited as the need to accomodate the local language, context and curriculum. However the participant from the German University (a campus based institution) suggested a need to perhaps restructure and condense the material. This latter comment is not surprising since some of the units identified by this participant were unusally 200 and 600 hours in terms of study time. A lack of time to adapt the material was mentioned by two participants.

The institutions would judge the value of *OpenLearn* material in different ways. Some institutions would depend on the academic opinion alone, some on the students feedback and others using a combination of both methods. The participants found it difficult in the time available to specify how they might support the use of the *OpenLearn* units. Concerns were raised about cost implcations and quality assurance.

This research provides useful and important initial guidance for future research aimed at more widespread adoption of OER. It appears from participants comments that some of the *OpenLearn* units are quite large and this could be a barrier to reuse. Indeed some participants suggested that they would send their students directly to the appropriate smaller section of a unit as presented rather than the unit as a whole or revising the unit for their own use. This reiterates a question asked at the CAL '07 conference (at the end of a paper [12]) verbalised as 'why don't you make the Openlearn units smaller'.

Further work is investigating how to improve upon the *OpenLearn* processes and procedures to encourage the adaption, reuse and upload of content including new content (*POCKET*). *POCKET* (Project on Open Content for Knowledge Exposition and Teaching) is a consortium of four universities based in the UK. The project is led by the University of Derby and is partnered by The Open University, the University of Bolton and the University of Exeter (see [13]).

The need to gather evidence of use and reuse of OER is identified as a major project *OLnet,* starting in January 2009. It is proposed that *OLnet* will investigate as part of its brief 'the OER effectiveness cycle'. The 'OER effectiveness cycle' provides an iterative sequence of information about the effectiveness of individual resources: operating at the component level. 'One moves from design or selection of OER, to implementation, to deployment, and through evaluation that generates data that informs design iteration. This may happen rapidly or slowly, with anything from one to hundreds of learners, generating informal or formal data (with recognition for the diversity of forms of evidence)' [14].

Acknowledgements

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