



Open Research Online

The Open University's repository of research publications
and other research outputs

An empirical investigation of the emergent issues around OER adoption in Sub-Saharan Africa

Journal Item

How to cite:

Ngimwa, Pauline and Wilson, Tina (2012). An empirical investigation of the emergent issues around OER adoption in Sub-Saharan Africa. *Learning, Media and Technology*, 37(4) pp. 398–413.

For guidance on citations see [FAQs](#).

© 2012 Taylor Francis

Version: Accepted Manuscript

Link(s) to article on publisher's website:

<http://dx.doi.org/doi:10.1080/17439884.2012.685076>

Copyright and Moral Rights for the articles on this site are retained by the individual authors and/or other copyright owners. For more information on Open Research Online's data [policy](#) on reuse of materials please consult the policies page.

oro.open.ac.uk

An empirical investigation of the emergent issues around OER adoption in Sub-Saharan Africa

Pauline Ngimwa and Tina Wilson*

Institute of Educational Technology, The Open University, Milton Keynes, MK7 6AA UK

An empirical investigation of the emergent issues around OER adoption in Sub-Saharan Africa

Within the past few years, Africa has joined the rest of the world as an active participant in the Open Educational Resources (OER) movement with a number of home-grown and externally driven initiatives. These have the potential to make an immense contribution to teaching and learning in Sub-Saharan Africa (SSA). However, certain barriers prevent full participation. This paper reports on qualitative research that sought to investigate SSA's readiness to adopt OER. The study involves three case studies based in higher education institutions involved in OER projects and located in Kenya, Uganda, and South Africa. Findings indicate contrary to popular belief that low technology levels in Africa do not necessarily impede adoption of such educational technologies; the real challenges facing readiness to adopt OER appear to be related to socio-economic, cultural, institutional and national issues. This paper argues for a complete mind shift in how people perceive OER. It also proposes raising awareness of OER at all levels, involving institutions and government, versioning OER for the African context and conducting more research on OER adoption.

Keywords: open educational resources; OER in Africa; challenges of adopting OER

Introduction

When the concept of Open Educational Resources (OER) was conceived, supporters perceived it as a way of making knowledge accessible to all, especially those in most need (Smith & Casserly, 2006). This view is also shared by the 2002 Unesco Forum¹ on the impact of open courseware for developing countries. In their declaration, the forum participants expressed “their wish to develop together a universal educational resource available for the whole of humanity” (UNESCO, 2002 p. 6). Since then, great strides have been made to make the OER dream a reality all over the world. Ground breaking initiatives such as OpenLearn², MIT OpenCourseWare³, UCT OpenContent⁴ and MERLOT⁵ now exist, making quality

¹ http://www.unesco.org/education/news_en/080702_free_edu_ress.shtml

² <http://openlearn.open.ac.uk/>

³ <http://ocw.mit.edu/index.htm>

⁴ <http://opencontent.uct.ac.za/>

educational content freely and openly available to anyone willing and able to use it. However, the fact that this notion of OER is foreign and was conceived and framed in the main within technologically-enabled contexts raises some fundamental issues that influence their effective adoption in developing countries.

This paper reports findings from a qualitative investigation that explores Sub Saharan Africa (SSA)'s readiness to adopt OER developed within their own education system. Framing the investigation within an existing OER project (i.e. Teacher Education in Sub-Saharan Africa (TESSA)) it was possible to interview institutional practitioners (already involved in OER in higher education institutions (HEI)) in Kenya, Uganda and South Africa and discover challenges and success factors that had an impact on their readiness to adopt OER in this region. Although a single project is not representative of a greatly diverse continent such as Africa, the choice of TESSA presented an appropriate study context as it provided access to African practitioners conversant with OER who had first-hand experience of developing and using such content within their own context. Additionally, nine non-TESSA participants from the same institutions were included to help identify socio-cultural issues that potentially influenced non-adoption of OER. We first present a brief literature review followed by a background section which includes a description of the TESSA project. An account of the research method used is then provided, followed by the research findings which are discussed within the context of existing knowledge. The paper concludes with suggestions for future OER development in SSA and similar contexts.

LITERATURE REVIEW

Issues around adoption of OER have been identified in relation to the African continent; however the discussion has been anecdotal in nature since little documented empirical evidence exists (Hodgkinson-Williams, 2010). Although broadband access can be limited and costly (OECD, 2007; Larson and Murray, 2008; Wilson, 2008; Chiles, 2010) previous studies

⁵ <http://www.merlot.org/merlot/index.htm>

have indicated that another fundamental issue is related to the language and culture of OER developed in English and within the Western culture. As Lane et al. (2010) notes, early production of OER was from legacy material written in English. These OER are seen as causing potential pedagogical and cultural issues for users in developing countries (see Albright, 2005; Selinger, 2004; OECD, 2007; D'Antoni, 2007; Larson and Murray, 2008, Hatakka, 2009; Selinger, 2009). Wilson (2008) has highlighted this issue in her study of the suitability of OpenLearn OER (developed by the Open University, UK) for a South African university. Her study suggested that although these resources would fit within the curriculum as supplementary materials, they would need adaptation to fit into the language of South Africa. English is not necessarily the first language in South Africa, which has a number of different official languages. Hatakka's (2009) study also identified culturally embedded issues in the style of the English language used when Western OER have been developed. This made the content difficult for students to understand. At present little is known about how OER developed within SSA itself are received and used.

If the vision of tapping the potential of OER in Africa is to be realised, these issues must be carefully understood and empirically tested in order to identify ways to alleviate them. The aim of this paper is to highlight OER that have been developed within and for SSA and discuss the opportunities and challenges that arise when OER have been developed for this context. The question being addressed is 'What challenges and success factors are related to OER adoption when OER are developed within the SSA context?'

BACKGROUND

Africa despite being a late entrant, has witnessed a number of OER initiatives (Butcher, 2010) and now home-grown projects such as OER Africa exist that promote and support the creation and use of OER. Externally funded initiatives such as the TESSA project are already making an immense contribution to teaching and learning on the continent by providing access to quality educational resources that would otherwise be unaffordable (Wolfenden, 2008; Ngugi and Butcher, 2011).

TESSA

TESSA⁶ is a research and development project initiated by the Open University in the United Kingdom in 2005 to improve the quality of, and extend access to university-led teacher education programs in SSA (Wolfenden, 2008; Thakrar et al., 2009). TESSA involves a consortium of 18 institutions (13 African institutions and 5 international organisations) delivering teacher education in nine African countries. The consortium, through a series of workshops across this region worked with teacher trainers (academics) to develop a large bank of OER in text and audio using local knowledge, materials and approaches. The content focuses on literacy, numeracy, science and social and personal education and is structured in such a way that it can be adapted for different environments. This is because it is versioned to the nine country contexts and translated into Arabic, English, French and Kiswahili (the four main languages used in this region). According to Wolfenden (2008), these resources are meant for teachers to support their teaching and learning within their specific classroom environment. Another characteristic of these resources is that they have been developed to suit the low technological levels of this region which has limited internet bandwidth. Resources from the TESSA website can be transformed into a variety of formats i.e. webpages, word documents (which can be downloaded and amended), pdfs (which can be printed), CDs and DVDs.

The study

This study follows an interpretative case study methodology where the authors are outsiders and not involved in the OER project investigated. It is qualitative in nature, with the aim of gathering evidence to aid the understanding of socio-technical issues affecting adoption of OER developed in the SSA context. Qualitative research makes achieving this understanding possible because it enables a deeper understanding of social phenomenon (Maxwell, 2005).

The TESSA project was chosen as the main focus of the study for two main reasons. First and foremost, it gave access to participants conversant with OER as users and

⁶ www.tessafrica.net

developers in the SSA context. Therefore it was possible to identify issues surrounding OER adoption from real experiences. The second reason was that TESSA covers different universities across SSA and therefore provided an opportunity to explore a variety of different issues surrounding the adoption of OER from a wider perspective.

In order to situate this study within the wider institutional contexts investigated, data related to socio-cultural issues was also obtained from non-TESSA participants. This was important for identifying obstacles that influenced non-adoption of OER by those not participating in OER initiatives in this SSA context.

In total, three case studies of HEI (based in Kenya, Uganda and South Africa) were identified. The first case study was based in a rural Kenyan university and four participants were interviewed. These included two academics involved in TESSA resource development who had introduced the resources to their teacher trainee students. The third participant was one of the teacher trainee students, a primary school teacher who was using these TESSA materials in his teaching practice. The fourth participant was a non-TESSA librarian .

The second case study focused on a university in Uganda based in an urban setting and involved seven participants. They included two TESSA academics who had participated in content development, two non-TESSA academics, and three non-TESSA librarians.

The third case study was based in an urban South African setting and involved three institutions. The first was a predominantly face-to-face university (with a distance education department). Six participants were interviewed and included three TESSA academics, of which two were involved in resource development while the third was a user of the resources and helped her teacher trainee students to use them during teaching practice. The other three participants were non-TESSA librarians.

The second institution in this case study was a distance education university while the third institution was a non-governmental organization with a focus on distance education in Africa. In both institutions, two TESSA academics who had been involved in the content

development as well as in overseeing the implementation of this project in their respective institutions were interviewed.

In total, 19 participants, purposively sampled were included (comprising 10 main participants from TESSA and 9 non-TESSA participants) as summarised in Table 1 below:

Table 1. Summary of study participants

Characteristics and roles		Kenya	Uganda	South Africa			Total
				Institution 1	Institution 2	Institution 3	
TESSA	OER developers (Academic)	2	2	2	1	1	8
	OER Users	1	-	1			2
Non-TESSA	Digital librarians	1	3	3	-	-	7
	Academics	-	2	-	-	-	2
Total							19

DATA COLLECTION AND ANALYSIS

Data collection took place in the respective countries between September and October 2009.

Data was obtained from semi structured interviews and from non-participant observations by one of the researchers. Interviews lasted between one and two hours and were structured around the following four areas:

- participants' perception and usage of OER,
- what it takes to be an OER participant and how deeply they were involved,
- what Information and Communication Technology (ICT) equipment participants had access to and what technological challenges they experienced,

- participants' views on OER readiness amongst their colleagues, institutions and within the sub-Saharan region.

All interviews were audio recorded and transcribed. These were then coded using NVivo 8 software, following a thematic analytical approach (Boyatzis, 1998) in order to identify main concepts. Concepts were derived from data and given a code that best represented the data (see Hammersley and Atkinson, 2007). In the next phase, similar codes were grouped together to form categories. These categories were then studied in order to identify relationships, linkages and patterns.

Data from observations have been included to support the interview data. For example observations were made of how OER had been adapted to support teaching and learning. The findings reported below include points of interest which have been illustrated with verbatim extracts from the participants only identified by roles.

Findings

OVERVIEW OF OER CONTRIBUTION TO EDUCATION

The ten TESSA participants all indicated that the TESSA resources fulfilled the need for material that is relevant to SSA, of high quality and affordable. The comment below is a typical comment from the TESSA participants:

“... the teacher education materials that have been developed around TESSA are materials that are relevant to the setting in Africa, they are dealing with issues of quality in teaching in Africa, therefore there is an element of relevance to the needs of the teachers in Africa. ..it is too costly to buy textbooks all the time and pay subscription fees for journals and some of this material is available for free.”
(Academic 1-Uganda)

The TESSA OER were also integrated into teaching and learning. For example, in one institution these resources were being used to train teacher trainees as indicated below by a TESSA participant:

“...[the trainee teachers] are using them for their diploma in primary education, the tutors are using these materials for training and they are encouraging the teacher trainees to use the activities in the school setting.” (Academic 1-Uganda)

Another example is from the Kenyan teacher trainee, a primary school teacher who adapted TESSA OER and designed a weather station from scrap materials (such as empty bottles, pieces of timber and card board). The weather station was relevant to the entire school, as the weather topic in the national curriculum is taught in all primary school classes. As a result this teacher reported an immediate positive learning outcome with marked improvement in the pupils’ understanding of the weather topic in all associated classes.

TECHNOLOGICAL ISSUES

The issue of technology was identified as a barrier to successful participation in OER development. Challenges such as limited and costly internet bandwidth, limited access to computers and power supply interruption were highlighted. This mainly affected the ability to work in digital mode as users were forced to use printed copies. One TESSA participant commented:

“Our biggest challenge is that ... print is still dominant, so while most of the OERs will require that you put back your revisions so that others can share in it ... the tendency not to put back revisions (because you are not developing for online usage) is very strong, you are tempted to just work offline and so you cannot contribute to the pool” (Academic 2-Uganda)

There was also variation in the level of impact across the different universities. For example institutions in East Africa (Uganda and Kenya) appeared to be less equipped technologically than those in South Africa. This is not a surprise given that South Africa is more technologically advanced compared to other African regions (Farrell & Shafika, 2007). The fact that the Kenyan university was located in a rural setting had an impact as internet access is less prevalent in rural areas than in urban areas (Ivala et al., 2005). A similar

technology variation between rural and urban settings has been identified in a study carried out by Wilson (2008).

Similar technological issues have been highlighted in existing literature (i.e. OECD, 2007; Larson and Murray, 2008; Wilson, 2008; Hatakka, 2009; Chiles, 2010). However, this research established that these issues have not prevented those willing from participating and identified useful insights into ways of dealing with similar technological challenges. For example the study identified a different perception towards technological challenges. All ten TESSA participants particularly felt that technology was not necessarily critical for OER implementation. There were examples cited of OER projects in Africa that have succeeded without technology as noted in this excerpt:

“I mean OER are not really about technical resources ...the digital thing enhances it and it makes it easier to adapt, etc. But actually it isn't a logical necessity, we ran a whole OER project and the most we used was emails, so nobody was required to develop a digital tool.” (Academic 3- South Africa)

Another example is where participants especially those with poor internet connectivity in Uganda and Kenya felt that the availability of alternative formats such as print, CDs and cached versions of digital formats enabled them to use OER where internet access was limited. One participant commented that although teachers do not have access to the technology at school, they could still access OER on CDs from cyber cafés. These findings concur with Larson and Murray's (2008) OER project approach for developing countries that consists of a blended online and offline repository of high school math and science video modules. These are developed in different formats including CD, DVD and video tape to ensure that they are obtainable where internet broadband is not available to support the streaming of online videos. This blended approach supports the idea that technology challenges are not necessarily a barrier to participating in OER as they are still accessible through other non-technically supported formats.

Additionally, two of the ten TESSA participants suggested that a way to overcome the technological challenges was to customise this innovation to fit into the technological levels of Africa. Their view was that since the OER model was developed within contexts that are technologically advanced, it is difficult to make this model work well in Africa, and hence it needs to be customised. The suggestion was that since Africa is so well connected through mobile technology, OER should be customised in such a way that they can be accessed through mobile devices. This is a suggestion that was highlighted in Wilson's (2008) study where she alluded to the fact that as mobile phones become increasingly available, they will be a more popular mode for internet access.

SOCIO-CULTURAL AND ECONOMIC ISSUES

The TESSA participants were already supporters of the OER movement through the TESSA project and therefore they understood the benefits that OER provide and considered themselves ready for OER adoption. However, they identified the following socio-cultural issues which they thought hindered readiness to adopt these resources amongst the wider university community. These issues were also confirmed by observational and interview data from the other nine non-TESSA participants.

In the first instance, this study identified a general lack of awareness of OER amongst the non-TESSA participants interviewed. The two non-TESSA academics stated they had never heard of OER before, even though they were already involved or participating in other open access activities. One of them was developing digital images of tropical diseases (with annotations) to be used as free teaching materials by his counterparts in Western universities. This participant was surprised when it was suggested to him that what he was developing could qualify as OER material. All seven librarians (from the nine non-TESSA participant group) interviewed knew very little about OER, even though they were actively engaged in the Open Access Movement. This was corroborated by a TESSA participant who commented that some of their colleagues were using these resources without knowing that they were actually OER. Hatakka's (2009) study on OER adoption in Bangladesh and Sri Lanka

highlighted a similar lack of awareness among Bangladeshis who turned to textbooks to support their content development.

A second issue is related to academic pride and in owning Intellectual Property where academics think their work is unsurpassed and want to protect it and hence are unwilling to share it as indicated below by a TESSA participant:

“...people do not want to let go of the copyright of their materials, they don’t want to say anybody can use this, they still want to own it.” (Academic 4 – South Africa)

One TESSA participant explained that this could be as a result of most African academics not having access to current information resources. They think that what they have developed is still valuable while it might actually have been superseded by new knowledge in other parts of the world:

“But because of less access to up to date information many people still think what they found out five years ago when they were undertaking research is so valuable they should not let others take it.” (Academic 2 – Uganda)

Academic pride was also identified among some who would not expose their work for scrutiny (by putting their content out as OER) as they feared their work might not withstand national and international critique. This observation was made by two TESSA participants.

Thirdly, some academics who have in the past earned an income from their own copyright materials were hesitant to participate in OER and release the copyright of their materials for nothing in return. This is a particularly critical issue in Africa where academics are not always remunerated competitively (see Visser, 2008). An academic (a TESSA participant) commented:

“Academics ... don’t want to support OER because they have made a lot of money and they continue to make a lot of money out of their materials.”
(Academic 4-South Africa)

It is worth noting that the findings above are not unique to the case studies reviewed in this research but agree with some existing literature (e.g. Hylén, 2006; Larson and Murray, 2008).

Fourthly, though Africans culturally like to share, this is mostly at the oral level. Most people are happy to talk about their ideas. However, when asked to share them on the internet, they become shy. One TESSA academic expressed her frustration at her colleagues not participating even in an online discussion, yet when they met, they were happy to talk about their ideas. These findings contradict what Kursun et al. (2010) found in their study about OER development in Turkey. Turkish academics were happy to share their content online as long as it was not adapted or changed in any way.

The fifth issue identified was the unwillingness of potential OER users to spend time adapting and using these resources even where the benefits of using OER were clear, a fact that has been discussed by Albright (2005, p.8) who noted that “the greatest concern is the time that is required from academics to prepare elements of a course that will be available, monitored, maintained, updated and perhaps re-formulated for new settings and different uses”. This was illustrated to a good degree by the Kenyan teacher (a TESSA participant) who developed a weather station. Even though his colleagues could clearly see the benefits of the adapted weather station, they were unwilling to spend their time and energy engaging with the weather station with their students. This issue of having time and motivation to participate has been highlighted in existing literature. For example, Selinger (2009) has observed that some teachers lack time and motivation to develop their resources even when they are supported with a bank of relevant resources and an electronic environment. Studies by Hylén (2006) and Wilson (2008) also found that potential participants thought they did not have time to develop or adapt OER.

The sixth issue relates to the attitude towards OER as foreign as was highlighted by two TESSA participants in South Africa. In one institution, there had been resistance from academics who did not want to use resources they had not created. They believed their own content would be better and even quoted the phrase “a not invented here syndrome” to refer to

resistance to content developed externally. Hatakka (2009) found similar resistance where participants thought foreign content hindered their creativity as teachers.

Lastly, this study identified a capacity issue to do with a lack of computer literacy as also hindering people's readiness to participate and use OER content. The Kenyan teacher trainee (a TESSA participant) commented:

“... personally I may be able to use the computer but some of my colleagues are not.” (Teacher trainee-Kenya)

A related finding was that some of the older academics (who appear not to be computer literate) did not want to expose their lack of knowledge and therefore resisted getting involved in technology-related projects. This appears to be a cultural issue which institutions wishing to take on OER projects should bear in mind. Institutions might want to depend more on younger academics that are more likely to be interested in ICT.

INSTITUTIONAL AND NATIONAL ISSUES

Factors related to institutional and national policies were also identified as impacting on African institutions readiness to adopt OER. The biggest challenge was identified as Intellectual Property Rights (IPR) and how these were tied to the policies.

“...the issue really about OER is the licensing issue, that's the bottom line.”
(Academic 3 TESSA participant - South Africa)

Two out of five South African TESSA participants agreed that universities in that country still held on to the policy that rewarded academics on the basis of their publications in accredited journals because this is in line with government policy for financing institutions. Hence, this discouraged academics from sharing their academic output openly as OER as this did not support them when it came to promotions and related academic rewards. This finding has also been highlighted elsewhere in the literature (e.g. Albright, 2005; OECD, 2007; Chiles, 2010; Hodgkinson-Williams, 2010). These authors observe that an emphasis is placed on research outputs as a basis for promotion, salary increases and grant awards, as opposed to

recognition for developing teaching and learning materials. They advocate adoption of institutional policies that encourage the opening up of educational content and valuing the creation of open content.

It was also established that an institution’s ability to provide financial support was critical in determining the readiness of that institution to embrace OER. An OER project has financial implications which an institution must be ready to support if such a project is to be successful. This was a view shared by five out of the ten TESSA participants. One commented:

“... now what we often hear in the TESSA project is that there are too many materials and they are too expensive to print, but by the same token we have not got the electronic infrastructure to make them available electronically, so the issue of finance is an issue that hits OER in whatever format ... they are made available. .. So in fact it is the economic problems in education in Africa that impedes everything. This applies to OER adoption.” (Academic 3 –South Africa)

A related point, raised, was the governments’ readiness to support the availability of cheaper bandwidth. One TESSA participant felt that the technical challenge facing OER adoption was not really a capacity issue. Rather, it was due to a lack of political will to reduce the cost of bandwidth. The findings are summarised in table 2 below.

Table 2. Summary of research findings

Benefits of OER to SSA	<ul style="list-style-type: none"> • Better teaching and learning outcomes • Improved learners’ performance • Access to quality and cheap learning resources
Obstacles to OER adoption in SSA	<ul style="list-style-type: none"> • Socio-cultural and economic issues <ul style="list-style-type: none"> ○ Academic pride ○ Lack of awareness ○ Negative attitudes towards OER as a foreign initiative ○ Lack of time/unwillingness to find time to participate ○ Fear of loss of extra income • Technology-related costs • Unsupportive institutional and national policies

Discussion

This research established the existence of a positive perception of the contribution OER has made towards education generally. All ten TESSA participants interviewed confirmed Wolfenden's (2008) findings that TESSA OER provide an alternative cheaper, quality and relevant educational experience to an underserved education system.

This study highlighted that despite there being technological challenges, issues related to socio-cultural, economic, institutional and national policies were major impediments to SSA's readiness to adopt OER. While it might be argued that a number of these issues only confirm what has been discussed in existing literature, it is important to note that this is one of the few attempts to provide empirical evidence of the existence of OER developed within the SSA context.

A second important point is the fact that this investigation was based largely on a successful OER project. Though the findings of one project cannot be used to generalise for a whole continent, they offer relevant insights that can be used to overcome some of the existing challenges experienced in similar contexts. These are discussed below.

One of the key findings was the extent to which OER were being adapted to support teaching and learning. The successful example of the 'weather station' constructed by adapting TESSA OER shows how possible it is to improve teaching practice with immediate positive results for learners, as long as there is a willingness to adapt the resources.

It is interesting to note that although some TESSA participants were wary about foreign content, they were happy to use and adapt the TESSA content. One reason could be the approach taken, which was to develop OER content with local people and adapt it to specific cultures, contexts and languages in the SSA country where it was to be made available (Wolfenden, 2008). This approach improves the relevance and accessibility of these OER as they need much less adaptation and localisation to the home context. Perhaps developing countries need to adapt context sensitive approaches such as the one taken by the

TESSA project in order to minimise potential issues caused by OER developed in a foreign language and for a different culture.

Another important insight from this research was that the uptake of OER in the TESSA project was prevalent amongst the ‘converts’. These were people who believed in open resources and were willing to get involved. These converts were committed to using and adapting OER which requires their time investment and motivation. Hodgkinson-Williams (2010) discuss the role of academics involved in OER development in the light of the “active agent” described in the Archer’s realist social theory (Archer, 2003, cited in Hodgkinson-Williams, 2010). The academics as the “Active agents” will find the act of developing and sharing knowledge as one of their ultimate concerns and deliberately find time in their lives to create and share their resources. Thus, according to Hodgkinson-Williams, participation in OER development is very much seen as a voluntary contribution from academics. Consequently, the inclusion of such people who are willing to volunteer their time to use and develop OER seems to be an important consideration while thinking about ways of scaling up OER adoption. This suggests that we need to have more of these ‘active agents’. However, it should be noted that this is not always easy to achieve as there is potential for these ‘active agents’ to loose interest and withdraw from active involvement. For example Petrides and Jimes (2008) report on a project developing high school science texts which started with 420 volunteers though in the end only ten became regular content contributors.

To counteract this, existing literature (i.e. D’Antoni, 2009; Chiles, 2010) has documented extensively the need for creating awareness of OER at institutional and national levels. Creating awareness has the effect of changing attitudes towards OER and encourages a mind shift from traditional approaches to embracing new open methods. As this research showed, the non-TESSA participants were already embracing the concept of openness though they were not aware of OER. This shows that there is potential amongst university communities and awareness raising efforts could result in increased participation.

This study also showed the impact institutional and national policies have on OER adoption, a fact that has been noted previously (see Albright, 2005; D’Antoni, 2007; OECD,

2007; Hodgkinson-Williams, 2010). Traditional institutional policies that guide how academics are remunerated need to be replaced with more open access friendly approaches. Where such policies have been implemented, there has been a noticeable change in how academics view OER. For example, Keats (2009) reported on his South African-based university's philosophy of freedom which made it easy to introduce an OER strategy in the university. This is also happening in other African universities (see Ngugi and Butcher, 2011) where policies are being revised to put academics' participation in OER development at the same level as research for tenure and promotional considerations. This will encourage participation and help change negative attitudes towards OER. This policy change should happen at the national level as suggested by D'Antoni (2009). This will not only influence appropriate support in terms of resourcing but also strengthen technology infrastructure that supports educational institutions' functions (affordable and widely available broadband).

Conclusion

This empirically driven study has provided interesting insights into the readiness of SSA to adopt OER, an area where little research on OER exists and in the main is anecdotal in nature. The research findings in this paper have emphasized that the main obstacle influencing adoption of OER is related to socio-cultural issues (i.e. a lack of awareness, negative attitudes, limited capacity, academic pride and loss of income) as well as policy related factors at national and institutional levels. The research has also established that technology issues, though important, are not considered a major obstacle. This is the case as users have identified alternative blended approaches that fit with the low-technological levels present in this context. In light of these findings, this research could be taken forward in the SSA context in two ways through: (i) identification of realistic and effective awareness raising strategies; (ii) investigation of strategies for strengthening and expanding the number of existing OER practitioners using emerging technologies such as mobile technologies. Finally, the fact that this research was primarily based on an already successful OER project has presented some useful insights that could inform other related OER projects in developing countries.

Acknowledgements. We would like to thank our study participants in Kenya, Uganda and South Africa and the TESSA project. This study was funded by the OLnet project which in turn is funded by the William and Flora Hewlett Foundation. TESSA itself is funded by the Allan and Nesta Ferguson Charitable Trust and the William and Flora Hewlett Foundation.

Notes on Contributors

Pauline Ngimwa is a researcher at The Open University's Institute of Educational Technology. Her research interest is in the area of educational digital resources in higher education. She has extensive work experience in higher education and information management sectors in Africa. Pauline has a Master of Research and an MPhil. in Information Sciences. Her PhD in Educational Technology is from the Open University.

Email: p.g.ngimwa@open.ac.uk

<http://iet.open.ac.uk/people/pauline.ngimwa>

Tina Wilson is a research fellow in The Open University's Institute of Educational Technology in the UK. She has been the principal investigator on a number of internally and externally funded research projects concerned with the educational use of online resources, systems and tools. Her recent work is in the area of Open Educational Resources having worked on The Open University's Open Content Initiative 'OpenLearn' funded by the William and Flora Hewlett Foundation (USA), the 'Project on Open Content for Knowledge Exposition and Teaching' (POCKET) funded by JISC (UK) and 'Curriculum and Pedagogy in Technology Assisted Learning' (CAPITAL) funded by BECTA (UK). She is also on the steering committee for the (Open University) OER 'Languages Open Resources Online' (LORO) project funded by JISC. Her current post on the Open Learning network project (OLnet) is funded by the William and Flora Hewlett Foundation. Tina's MSc is in Information Technology from Coventry University and her PhD in Computing is from The Open University.

Email: tina.wilson@open.ac.uk

<http://iet.open.ac.uk/people/martina.wilson>

References

Albright, Paul. 2005. Open Education Resources Open Content for Higher Education.

International Institute for Educational Planning.

<http://www.unesco.org/iiep/eng/focus/opensrc/PDF/OERForumFinalReport.pdf>

Boyatzis, R. E. 1998. Transforming qualitative information: thematic analysis and code development. London: Sage.

Butcher, N. (2010). OER Dossier: Open Educational Resources and Higher Education.

http://oerworkshop.weebly.com/uploads/4/1/3/4/4134458/03_open_educational_resources_and_higher_education.pdf

Chiles, M. 2010. Taking OER beyond the OER community: policy and capacity building for developing countries. UNESCO/Commonwealth of Learning.

http://oerworkshop.weebly.com/uploads/4/1/3/4/4134458/taking_oer_beyond_the_oer_community_policy_forum_final.pdf

- D'Antoni, S. 2009. Open Educational Resources and Open Content for Higher Education. *Revista de Universidad y Sociedad del Conocimiento*, ano, vol. 4 (001).
- D'Antoni, S. 2009. Open Educational Resources: reviewing initiatives and issues', *Open Learning: The Journal of Open, Distance and e-Learning* 24, no.1:3 – 10.
- Farrell, G. & Shafika, I. 2007. Survey of ICT and Education in Africa: a summary report, based on 53 Country Surveys. Washington, DC, infoDev/World Bank.
- Hatakka, M. 2009. Build it and they will come? - Inhibiting factors for reuse of open content in developing countries. *The Electronic Journal of Information Systems in Developing Countries* 37, no.5:1-16.
- Hodgkinson-Williams. C. 2010. Benefits and challenges of OER for higher education institutions.
http://www.col.org/SiteCollectionDocuments/OER_BenefitsChallenges_presentation.pdf
- Hylén, J. Open Educational Resources: Opportunities and Challenges, OECD Centre for Educational Research and innovation, Paris.
<http://www.oecd.org/dataoecd/5/47/37351085.pdf>
- Ivala, E., Siluma-Mmekoa, E., & Butcher, N. 2005. Online access and connectivity of primary school teachers in sub-Saharan Africa. Braamfontien: South African Institute for Distance Education (SAIDE) . <http://www.tessaprogramme.org/pdf/d50716.pdf>
- Keats, D. 2009. The road to Free and Open Educational Resources at the University of the Western Cape: a personal and institutional journey. *Open Learning: The Journal of Open, Distance and e-Learning* 24, no.1:47-55
- Kursun, E., Wilson, T., McAndrew, P. and Cagiltay, K. 2010. Evaluating the current status of OpenCourseWare in Turkish Tertiary Education: Benefits, barriers and incentives. Paper presented at the Open Educational Resources 2010 (OER10), March 22-24, in Cambridge, United Kingdom.
- Lane, A.; Connolly, T.; Ferreira, G.; McAndrew, P. and Wilson, T. 2010. Reworking and Remixing Open Educational Resources. In Cases 'n' Places Global Cases in Educational and Performance Technology. A volume in the series: Educational Design and Technology in the Knowledge Society. Series Editor(s): Stewart Marshall, The University of the West Indies and Wanjira Kinuthia, Georgia State University. Available from <http://www.infoagepub.com/products/Cases-n-Places>
- Larson, R. C. and Murray, M. E. 2008. Open educational resources for blended learning in high schools: overcoming impediments in developing countries
Journal of Asynchronous Learning Networks 12: 85-103.
- Maxwell, J. A. 2005. Qualitative research design: an interactive approach. London, Sage Publications.

- Ngugi, C and Butcher, N. 2011. Promoting open and distance learning: a focus on open educational resources.
- OECD. 2007. Giving Knowledge for Free: The emergence of open educational resources <http://www.oecd.org/dataoecd/63/25/38851849.pdf>
- Petrides, L. and Jimes, C. 2008. Building Open Educational Resources from the Ground Up: South Africa's Free High School Science Texts. *JIME*, 7
- Selinger, M. 2004. Cultural and pedagogical implications of a global e-learning programme. *Cambridge Journal of Education* 34, no. 2: 223-239.
- Selinger, M. (2009). ICT in education: catalyst for development. In *ICT4D: Information and Communication Technology for Development*, ed. T. Unwin, 206-248. Cambridge: Cambridge University Press.
- Smith, M. S. & Casserly, C. M. (2006). The Promise of Open Educational Resources. *Change* 38(5), pp. 8-17.
- Thakrar, J., Zinn, D. and Wolfenden, F. 2009. Harnessing open educational resources to the challenges of teacher education in Sub-Saharan Africa. *International Review of Research in Open and Distance Learning* 10, no.4:1-15
- UNESCO. 2002. Forum on the Impact of Open Courseware for Higher Education in Developing Countries. <http://unesdoc.unesco.org/images/0012/001285/128515e.pdf>
- Visser, H. 2008. Listen to the Urgent Sound of Drums: Major Challenges in African Higher Education. *New Directions For Institutional RESEARCH, Assessment Supplement* 65-77.
- Wilson, T. 2008. New Ways of Mediating Learning: Investigating the implications of adopting open educational resources for tertiary education at an institution in the United Kingdom as compared to one in South Africa, *International Review of Research in Open and Distance Learning* 9, no. 1: 1-19.
- Wolfenden, F. 2008. Harnessing OERs, mobiles and other technologies for teacher education in Africa: the TESSA and DEEP projects. In *M-Libraries: Libraries on the move to provide virtual access*, ed. G. Needham and M. Ally, 71-82. London, Facet Publishing.