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How to cite:

Wolfenden, Freda; Buckler, Alison and Keraro, Fred (2010). OER adaptation and reuse across cultural contexts in sub Saharan Africa: lessons from the TESSA consortium. In: OER10, 22-24 Mar 2010, Cambridge, UK.

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Version: Accepted Manuscript

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OER Adaptation and Reuse across cultural contexts in Sub Saharan Africa: Lessons from the TESSA consortium

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Much is written of the potential of Open Educational Resources (OERs) to contribute to improvements in the quality of and access to education, particularly in environments such as Sub-Saharan Africa. But some of the greatest challenges lie in the processes of adaptation and re-use and as yet little has been reported on how best to support user communities to harness and integrate OERs for their own systems and cultures. This article describes an empirically based approach to understanding and representing the OER adaptation processes as it occurred across the TESSA consortium. The authors draw on a range of studies to make explicit the kinds of knowledge, skills and support employed in the adaptation process, the role of the structured template in supporting this process and the problems encountered. The article suggests that OERs will only fulfil their promise if issues of user access as well as understandings of their purpose, construction and underlying pedagogy are examined in detail. Finally the paper offers suggestions for guidance to support other users in adapting OERs for their own context whilst maintaining the quality of the OERs and working towards self-sustaining communities of users

Introduction

Much has been written on the potential of the internet to create a global intellectual resource of teaching and learning materials. Most recently the philosophy and development of Open Educational Resources (OERs) together with the rapid expansion of connectivity, particularly in areas such as East Africa, is beginning to offer unencumbered universal access to digital learning resources and the promise of improved educational opportunities in diverse, geographically dispersed educational communities (Atkins et al, 2007). The facility to amend and modify OERs makes viable the production of educational materials relevant to the cultural context and heritage of each locality; OERs have potential for celebrating diversity and to embrace the voice of the 'local' in resources to support learning without the creation of new original materials in each learning situation (OCLOS, 2007). Through reflected use and sharing of OERs there is the potential for constant improvement of the materials, the 'virtuous learning loop' (Atkins et al 2007).

But to unlock such potential OERs have to be first located, then adapted, used and the adaptations (perhaps with commentary on the form and impact of their use) made available to a wider community; otherwise they remain just another piece of 'content', merely stuff rather than a tool (Cantoni, quoted in Conole & Weller, 2008 p11). There is much eloquent advocacy for OERs and considerable funding has been devoted to their production (Casserly & Smith, 2008) But as yet there are few detailed

accounts of user interaction with OER – how teachers and students approach, change or adapt OER for their own contexts, in particular in contexts with few other resources. (Harley, 2008) What forms does this adaptation process take and what might be the factors that support or constrain it? To what extent is the form of original OERs influential in allowing users to legitimate their own local knowledge in adapted OERs?

Our interest is in teacher education and the use of OERs to support teacher educators in sharing their intellectual capacity, particularly in resource challenged environments such as Sub Saharan Africa. Here, access to high quality, pedagogically sound, learning materials is frequently inhibited by the inability of African educational institutions to afford them. Consequently, learning materials are scarce at all levels of the system. Thus the potential for OERs to contribute to the support, education and training of teachers is considerable, as are the challenges.

Locating appropriate OERs is a time-consuming challenge for everyone; the pedagogic approach inherent in the OER is often not explicit and neither is the context of their creation. However for those colleagues working in Africa, the challenges are magnified; the vast majority of OERs available online have not been created within African contexts. In higher education, the leading arena for OER activity, OER production has been dominated by a few elite institutions in the US and Western Europe. OERs from these sources do not transfer easily to low income countries (Kanu, 2005), major adaptation is required to ground them in the cultural realities of the environment of their use. But even for those OERs generated within the continent, we suggest that adaptation is needed to meet the requirements that resources are located within the lived experiences of the users, taking into consideration factors such as traditional beliefs, cultural values and environmental conditions.

In this article we report on the highly structured and supported process of adaptation of TESSA OERs for nine country contexts across Sub Saharan Africa. Data from analysis of the outputs of the process in three sites, along with exploration of the understandings, attitudes and prior knowledge of those professionals who undertook the adaptations, are used to suggest a number of factors which appear to have influenced the OER adaptation process in this particular project. We conclude by reflecting on the implications of these factors for the design of OER for cross-cultural use.

TESSA

TESSA (Teacher Education in Sub Saharan Africa) is a demand-led research and development project providing a practical and scalable response to the huge need for more qualified and skilled teachers in Sub Saharan Africa (Moon, 2007; Wolfenden, 2008). An estimated 1.2 million new teachers are needed to meet the targets of the Education for All initiative and Millennium Development Goals for education (UNESCO, 2010), and this figure does not take into account the training needs of existing teachers (Lewin and Stuart, 2003). TESSA is working to improve the quality of and access to high quality teacher education with a strong focus on teachers' classroom competencies and skills. Well-trained teachers, it is argued, will raise levels of pupil achievement (Dembélé and Lefoke, 2007; Commission for Africa,

2005) which is currently low in many countries across Sub Saharan Africa (UNESCO, 2005; 2007; 2010).

Eighteen institutions are members of the TESSA consortium; 13 of these institutions are directly engaged in delivering teacher education in nine countries of Sub Saharan Africa.¹ TESSA is led by the Open University, UK and supported by grants from a range of philanthropic trusts and government funds.

Core TESSA activity is the collaborative creation and sharing of OERs and strategies to support their use in school-based teacher development programmes. Some teacher education institutions in Sub Saharan Africa are in a position to commission or produce materials themselves but many are not. Conditions for teaching and learning in colleges of education (the main providers of primary teacher training) are very frequently inadequate, reflecting the school systems they serve. Physical infrastructure is often in a poor condition and insufficient for the number of students, with limited access to textbooks and libraries. Commonly teachers have few or no materials to support the ‘practicum’ element of their training programme and little or no guidance on translating constructivist ideas of learning, encountered in college lectures, into classroom settings with pupils – articulation between theory and practice is frequently weak with a low emphasis on developing skills of analysis and reflection (Adekola, 2007, Lewin, 1999). Teacher educators themselves have few, if any, opportunities for staff development.

Drawing on the ideas of Bruner (1996) TESSA OERs are conceptualised as a learning and strategy toolkit²; this includes a large bank of highly structured original OER study units to support school-based teacher learning. Teacher educators and teachers select from the bank according to the demands of their different settings. The TESSA OERs are mediating tools guiding teachers in constructing their personal understanding of the art of teaching through reflective practice, in the same way that they themselves facilitate the ongoing co-construction of pupil understanding through purposeful activity (Wells, 1999) The materials encourage teachers to exercise agency in their own learning and to enlarge and diversify their repertoire of classroom skills and practices.

The TESSA OERs are shared within the TESSA community and beyond, in a variety of formats, through the TESSA website. During 2009/10 over 250,000 teachers across Sub Saharan Africa will engage with the materials. The majority of teachers will access the materials in print form although increasingly we are seeing use of TESSA OER through CDs and online. For teachers access is usually, but not exclusively, through registered formal study on a range of programmes and courses at TESSA consortium institutions. (Thakrar et al, 2009). There is no unique TESSA course or accreditation; TESSA harnesses existing accreditation systems but TESSA OER use is undoubtedly influencing the development of assessment regimes in consortium institutions. Such extended engagement with the OER is making wide use of the collective effort and resources expended in their creation.

TESSA OER Creation

¹ Ghana, Nigeria, Kenya, Rwanda, South Africa, Sudan, Tanzania, Uganda, Zambia

² (Bruner 1996 ‘culturally devised ways of thinking, searching, planning’)

TESSA OERs were created collaboratively by teams of academics from across Sub Saharan Africa using a highly structured template. The OERs comprise 75 study units, fifteen in each of five areas of the primary curriculum; literacy, numeracy, science, life skills and arts and social science. Each study unit was subjected to a rigorous quality assurance process and is available in a variety of formats including web pages, pdfs and word documents.

There was a very clear target audience for the TESSA OERs: teachers working in challenging circumstances in basic education across the region. Authors drew on their own personal experiences of working with teachers in such environments – their own cultural scripts - and on findings from research studies such as the Teachers’ Lives project undertaken as part of TESSA (Buckler, 2009; forthcoming). However it was acknowledged that the original material would not be limitless in its ability to speak to all teachers, adaptation would be required to ensure that representation of ideas was meaningful to the teacher’s context or situation (Lave and Wenger, 1991). This prerequisite informed the design of the TESSA OER study unit template.

TESSA OER Design

An underpinning idea of OERs is not just that knowledge should be free but that these shareable assets should be able to evolve and change to reflect local contexts, needs and cultures (Kanu, 2005) One of the challenges of the TESSA OER design, then, was to create learning materials that could be shared and easily re-used in a variety of contexts without complete reworking, recognising a range of resource and capacity constraints.

The TESSA solution was to use a highly structured template where each TESSA study unit is characterised by:

- Three learning outcomes for the teacher;
- Three activities for the teacher to undertake in the classroom with their pupils;
- Three case studies recounting another teacher’s experiences with that activity or a similar activity;
- A threaded narrative linking the activities and case studies and
- Up to six resources (for example, subject information, examples of pupil work, lesson plans, pictures, stories and worksheets to use with the pupils, etc)

Each component of this template has a very clear word limit as shown in figure 1.

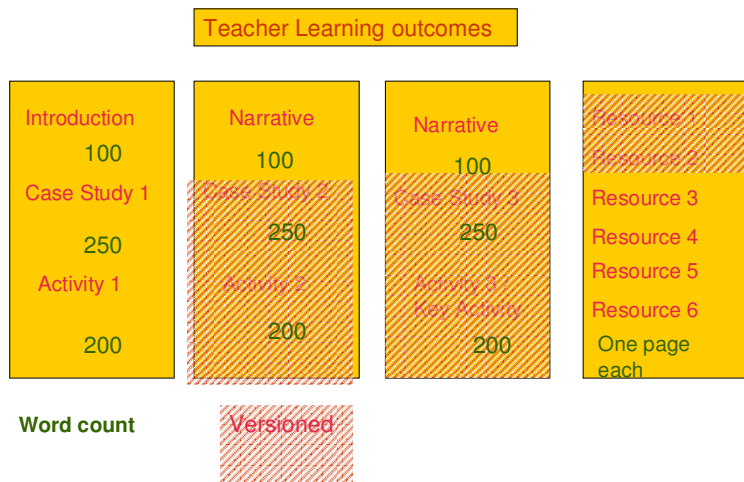


Figure 1: TESSA OER structure and adaptation template

Adaptation of the study units aimed to preserve integrity of purpose and internal consistency whilst speaking to the experiences of teachers in their own context across the continent. Analysis of the initial drafts of the study units, feedback from first stage development testing, and considerations of a balance between cross-cultural and country specific representations lead the template designers to suggest that approximately 40% of the study unit should be open for adaptation. It was decided to restrict the 40% adaptation to particular aspects of the study unit; the second and third activities and case studies and any two of the six supporting resources. Certain aspects of the template such as the learning outcomes, and the first activity and case study were generic and remain unchanged across all versions to preserve the integrity of the units as a learning experience.

This template then defined the writing of the original study units as well as their adaptation. Areas of the template not open for adaptation were written to be appropriate across all cultural settings and environments; terms specific to one locality were avoided and across each module (5 study units) a balance of examples from across Sub-Saharan Africa was included. Parts of the study unit to be adapted (shaded in Figure 1) drew on examples and perspectives of the author's own context.

TESSA Adaptation

Within TESSA this process was defined as changing or modifying particular parts of the study unit to connect more meaningfully to the lives of teacher learners using the TESSA OER. Drawing on experiences from other OER projects (Wiley, 2007) it was suggested that in proposing adaptations colleagues should consider the following characteristics of the teachers:

- environment
- language
- attributes (in particular prior learning and achievements)
- cultural heritage
- cultural beliefs.

By considering these characteristics those responsible for adapting the materials could make changes which reflected local conditions and were grounded in the cultural realities of the teacher – learners. But the use of examples from across the region in the un-adapted part of the study unit (60%) ensured that the teacher-learners were not restricted to examples from their own culture and immediate environment.

Adapting all 75 TESSA original study units took place in nine countries by teams at each of the TESSA consortium institutions and was supported by TESSA programme funding. In three countries, Sudan, Rwanda and Tanzania, translation into Arabic, French and Kiswahili respectively was an integral part of the process. Figure 2 below shows the different stages of adaptation:

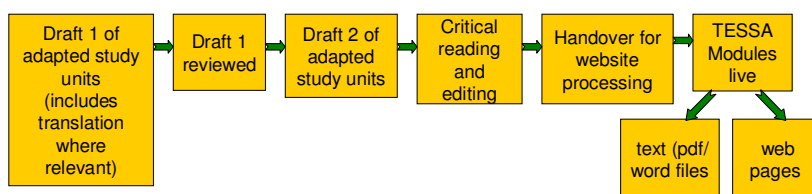


Figure 2: The TESSA adaptation process.

In this article we describe key characteristics of the TESSA adaptation process as it occurred, drawing in particular on examples from focus institutions located in three different countries. We have termed these sites P, Q and R. These sites represent the breadth of the TESSA consortium geographically, culturally and linguistically. Colleagues from each of these institutions had contributed to the writing of the original TESSA OER study units. Data for our analysis of the process at each site was gathered through a review of relevant project documentation and face-to-face semi-structured interviews with the academic colleague who had led the adaptation process and, on separate occasions, with a number of colleagues from within their teams (eight in total across the three sites). Interview questions focussed on professional background, attitudes towards OERs and the TESSA materials and experiences of the process of adaptation of the TESSA OER, for example:

- *How did you become involved with the TESSA materials?*
- *Why do you think you were asked to be involved?*
- *What did you think the purpose of the TESSA materials was?*
- *How do the TESSA materials differ from the materials your institution generally uses in teacher education courses?*
- *How was the role of adapting these OERs explained to you?*
- *Did you undertake any research during the process?*

- *Can you give me an example of something you altered?*

An interview was also conducted with the TESSA curriculum director who held responsibility for the adaptation process across the consortium.

The Process of TESSA Adaptation

Adaptation of TESSA OER took place across the nine very different country contexts in which the consortium is working. The process was tailored for each country with some key characteristics shared across the consortium. TESSA institution coordinators were responsible for the recruitment of staff to undertake the adaptation process, often drawing from the pool of original TESSA authors or critical readers. A minimum of two lecturers for each subject area was suggested.

In each site the process tended to start with a 2-3 day workshop, usually co-led by the TESSA Curriculum Director in collaboration with the TESSA institution coordinator. Some workshops were attended by two or more institutions. A generic TESSA handbook was given to all workshop participants to support them with the process. Depending on the number of staff involved, support required and the extent of changes, the first draft of adapted material was completed either during the workshop or shortly following the workshops. External critical readers were recruited to comment on the final draft.

Key deadlines for the final draft of the adapted materials were standardised across the consortium, although intermediate deadlines were negotiated as necessary for each institution. Link coordinators were recruited to liaise between the Open University, UK, the institution coordinators and the critical readers to facilitate submission and feedback.

Adaptation of TESSA OERs at the three focus sites followed this general pattern. We highlight here three features of the process which we feel are of relevance to other projects: lecturers' prior knowledge of OERs, the use of technology to support the process and the mode of adaptation.

The key features of OERs - how they are defined, developed and used, and in particular the OER iterative cycle of adapt, adopt and share - had only been encountered by lecturers at one of the focus sites prior to TESSA adaptation. But this one previous meeting with OER ideas had been a TESSA workshop during the original TESSA study unit authoring phase. Changing or modifying the work of academic colleagues and then publishing this adapted version in a public space was not an activity with which any of the lecturers at any site were familiar (see further discussion on p12)

Across the three sites we noted different levels of computer use and digital working. At site R the entire process was undertaken on soft copies and ongoing support for the lecturers, following the initial workshop, was by email. At site Q, initial changes were made on hard copy materials and later transferred to soft copies. Continuing support was through face-to-face meetings. At site P the entire process was undertaken without the use of electronic tools. Changes were made on hard copies and

the lecturers travelled, often long distances, to meet with the TESSA institution coordinator to discuss progress.

This familiarity with, and ease of access to, new technologies and the internet is reflected in the tools used when undertaking research for the adaptations. At site P, books and colleagues were the primary sources for productive enquiry (Dewey, 1966) whilst the internet was the primary tool used to locate stories and examples and check facts at the other two sites. However use of new technologies was frequently hindered by lecturers' lack of competence with these tools. On occasion, the TESSA Curriculum Director recalled, they attempted to cover up this with the decision not to make a change. This highlights a more systemic issue with ICTs in African institutions:

“And also, there is the fright. I will admit that most of us at this age on this campus are not computer literate and when someone says use this! Use this computer, there is a fright! They panic! We have professors who cannot even use the computer. Most of us are not sensitised to the use of the computer [...] and the facilities are so few. So because of that, using this computer for TESSA has been a small problem!” (Lecturer, Site Q).

For a large number of lecturers the ICT support provided by the workshop facilitators and institution coordinators was invaluable:

“At least we were assisted to get online and communicate with the Open University, and given some help on how to contact TESSA” (Lecturer, Site Q)

We think it interesting to note that OERs are frequently linked closely with the use of technologies. Perhaps we should question this linkage; TESSA experience at site P – where adaptation was carried out by hand, on hard copies of the materials, suggests OERs have equal applicability in contexts where access to computer technology is sparse.

The third feature we termed the ‘mode of activity’. The adaptation task was organised such that at site P the lecturers (subject specialists) worked individually on allocated sections and at sites Q and R lecturers worked in teams (of between two and five colleagues) on particular subject areas. Team size was primarily a function of resource allocation and geographical spread of the lecturers’ base campus.

Lecturers commented that the team working encouraged them to use examples drawn from across their country highlighting the heterogeneity of cultures and practices within national contexts. Furthermore they claimed teamwork supported them in improving their understanding of the adaptation process, although it did not necessarily lead to a larger number of changes or adaptations.

But in all three locations the process contained elements of co-operation and collaboration; even at site P where lecturers worked independently, initiation into the process was at a meeting and there was extensive face-to-face follow up support from the TESSA institution coordinator.

TESSA Adaptation outcomes

To understand the number, nature and form of the adaptations made to the TESSA OER we mapped changes in a sample of materials from the three sites against the original study units. Our sample included one study unit from each module - 15 study units from each site - this represented 20% of the complete materials. Two sets of the sample materials were in English. For the third set the mapping was carried out in the language of the materials and then the changes noted were translated into English for our analysis. We generated maps of the adaptations and from our analysis of these we propose an initial typology of changes to the TESSA OERs.

Type A: Names

A straightforward change of the name of a person or place to one that is locally relevant. These changes require local knowledge but little or no research, rather this type of change draws on knowledge of the participant’s own communities; several lecturers commented on the need to ensure that their choices of names reflected in-country diversity.

Examples of Type A:

TESSA Section	Generic section	Example of change
Social Studies and the Arts Module 2 / Section 1 <i>Investigating History</i> Case Study 3	Mr Obi Mrs Okafor Miss Ugwu	Mr Kata Mrs Kofie Miss Banda (Site R)
Science Module 2 / Section 2 <i>A closer look at plants</i> Case Study 3		Nyeri Primary School Mrs Sankale (Site Q)

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Type B: Culture and Environment

More complex changes including the replacement of traditional stories or historical events with culturally relevant examples, or the replacement of geographical landmarks or organisations with local examples. These changes drew on lecturers’ existing local knowledge but also involved use of tools to undertake further research.

Examples of Type B:

TESSA Section	Generic section	Example of change
Numeracy Module 2 / Section 3 Exploring 3D shapes Case Study 2	Case study about the pyramid structures built from bags of groundnuts in Maiduguri, Nigeria	Egyptian pyramids (Site P)
Literacy Module 2 / Section 3	Case study on the Project for Alternative Education	The ‘National’ Institute of Language

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<i>Using local games for learning</i> <i>Case Study 2</i>	in South Africa (PRAESA) and the promotion of additive multilingualism	(Site R)
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Type C: Curriculum

Changes to more fully align the materials with the existing National Curriculum for primary pupils taking into account relevant required skills, prior learning experiences of pupils, preparation for specific assessments and country specific terminology and conditions. These changes often included the addition of extra resources or the omission of particular resources which were felt not to be relevant to the specific curriculum or country context. This type of change also included adaptation of the materials to reflect different learning levels of pupils.

Examples of Type C:

TESSA Section	Generic section	Example of change
Life Skills Module 3 / Section 1 <i>Exploring good citizenship</i> <i>Case Study 2</i>	Case study about a discussion of pupils' duties in the home	Pupils are asked to write a story about their duties and present it to the class. A vote is then suggested to discover the most popular and most unpopular duties. Additional resource added. (Site P)
Numeracy Module 1 / Section 1 <i>Learning through games</i> <i>Activity 2</i>	An activity where different groups of pupils are playing different number games	Suggests that the teacher organises the pupils by ability and that he/she partners up with the less able pupils at the beginning of the games (Site P)

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We have represented this typology diagrammatically in Figure 3.

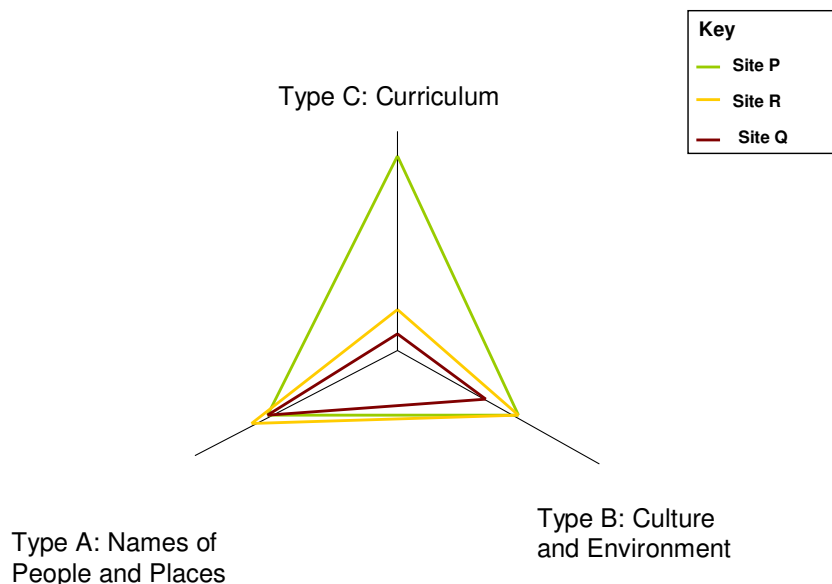


Figure 3: Typology and total number of changes

The length along each (2-dimensional) axis is directly proportional to the number of changes of that type for each site. Unsurprisingly Type A changes predominate across the sample; Type B and C changes are more complex, reflecting prioritisation of ideas, choice of knowledge and privileging of perspectives in the culture and, with the exception of site P, were fewer..

The surprising difference in the number of Type C changes we suggest is a result of the different interplay between subject matter, methods and pupil expectations in different cultures. This may have been a result of the higher levels of confidence in making changes at this site (P) or a reflection of the appropriateness of the original materials for that context.

Our typology is of adaptations noted in the TESSA process and is not intended to be exclusive. We might have expected to see changes to the teaching strategy in particular sections, for example a change from a whole class activity to one undertaken in groups, or a shift from an investigative approach to a teacher demonstration reflecting the dominant mode of teacher-led classrooms across Sub Saharan Africa. Approaches to learning and teaching are grounded in cultural backgrounds and expectations of what constitutes successful classroom practice is heavily influenced by the prevailing culture. However no examples of this were discovered in this study. We suspect this is due to the very tight structure of the original template and the critical reviewing process which aimed to preserve the learning outcomes and conceptual underpinnings of TESSA as well as the development of teachers' competencies through a constructivist approach. In the interviews lecturers expressed reluctance towards making pedagogic changes:

“Well we didn’t want to change the method. The method was the most important thing, so it was not changing the method, keeping to it, but trying to make it work in our classrooms” (Lecturer, Site R).

“I just had to keep the purpose in my mind. It helped because I think the purpose of the materials, to me, is so clear. I just tried to make sure that when I read them back the purpose, or rather the ideas about learning, were still as clear as before” (Lecturer, Site P).

But there was also perhaps some resistance to what might have been seen as the imposition of a particular set of notions of ‘effective learning experiences’ (Kanu, 2005) and a feeling that these were not open to amendment.

“The versioning wasn’t something huge, it was something else. They didn’t give us the leeway to put in things that could change the original product” (Lecturer, Site R)

Themes

Our analysis of the process of adaptation of TESSA OERs for use in a number of contexts across Sub Saharan Africa has lead us to identify three themes that we suggest influence the type and extent of adaptations made to the TESSA OER.

Personal construct

The first theme we have identified is personal construct; we draw here on the work of Banks, Leach and Moon (1999) and use the term to include the educational goals, notions of mind and learning, prior individual experiences and personal identity of the lecturers involved in the adaptation process. In the Banks, Leach and Moon model of teachers’ professional knowledge, personal construct lies at the heart of the dynamic interchange of subject knowledge, school knowledge and pedagogic knowledge. In undertaking the adaptation task we propose that lecturers draw on different elements of this professional knowledge in developing a workable professional understanding of the task.

In the selection and recruitment of lecturers, expert practitioners, for this process, subject specialism was a criteria but viewed by both selectors and selected as desirable rather than essential. Lecturers were subject specialists for the OER they adapted, almost all held Masters degrees with a number having completed a doctorate in Education. Only one lecturer, however, suggested that the main reason for her recruitment was because of this subject specialism; rather, pedagogic knowledge and experience with course or curriculum design were more commonly cited (perceived to be?) as the main reason for selection - school knowledge in the Banks, Leach and Moon model, the transposition of subject knowledge to the school situation; its selection and organisation for the school curriculum. Carey and Hanley (2008) agree that pedagogic content knowledge is an important component of the skill set required for efficient adaption of OER. A further criteria for selection in the TESSA process was response to contextual features - knowledge of learners in their particular settings and the prevailing culture (for example teachers in remote and rural schools who would be studying for their qualification at a distance), part of the lecturers’ personal construct.

“I also teach those distance students so I am aware of their environments, I have written a book for them in fact” (Lecturer, Site R).

However in deconstructing the process and outcomes of the adaptation process we suggest that it is the lecturer’s personal construct rather than one component of their professional knowledge, which is the most influential:

“Talking to students, exchanging ideas, and the most exciting part is when you get somebody that is so good that what you say, they challenge it. It is then that the other people follow and think differently. I like that. I don’t want to be a dictator” (Lecturer, Site R).

“So the purpose is to teach teachers to teach the children to be critical thinkers. Life would be a little better if it was not just about certificates” (Lecturer, Site R).

Those involved in the adaptation process demonstrated an active interest in and vigour for educational innovation and innovative pedagogies:

“So I am open to innovation, my late secondary school head master said ‘every situation is a learning situation’. So I see any opportunity that comes as a learning opportunity as a learning situation that I can make the best out of it. I don’t see the worst side, I am very optimistic.” (Lecturer, Site R).

“For example, I look at the materials now, even though they are versioned and I still see things that I might change for some teachers, because they are not the same and their needs are different to each other. I would like to re-write some case studies again, and also some of the internet pictures are not rich, I would like to change them.” (Lecturer, Site P)

Coordinators of the adaptation process noted that the lecturers tended to be “confident”, “outward-looking”, “sure of themselves and aware of the injustices in education in their countries” (TESSA curriculum director). However, despite this confidence and the unanimous open-mindedness towards OERs that participants expressed in the interviews, the actual process was a challenge for many. Changing or modifying the work of academic colleagues proved to be a steep practical and cultural learning curve and may have restricted the number and type of changes they made to the materials.

“So the bit that was difficult in the workshops was people initially only did things like change names [or...] change a little bit of phraseology but they would have big discussions about ‘can I change this ‘cause this person’s written it like this’ and the whole bit about the culture that you don’t criticise people. They saw criticism always as negative rather than constructive and didn’t see that versioning or adapting it to their own context was legitimate because this was what open educational resources were about. And so they got very timid about doing it really, we had to encourage them and say look you’re not insulting the writer at all, the writer wrote them knowing that they were going to be particularised to a certain country and a certain context so, you know, make it as relevant as you want to. Some felt more comfortable with it than others” (TESSA curriculum director).

While the original TESSA authors were selected through a rigorous, cross-consortium interview process, participants for the adaptation process were chosen locally by each institution. Interestingly the drop-out rate was much lower for adaptation than for authoring. We suggest that this may be because institutions were more able to accurately interpret the suitability of each prospective participant's personal construct to the task and compatibility with the ethos of TESSA and the wider OER movement.

Community and collaboration

In all sites the TESSA adaptation process contained elements of cooperative working; initiation into the process was at workshops or meetings and these were followed up by guidance from the TESSA coordinator or peer support at meetings or through email. Support during the process was described as information, guidance and encouragement in a variety of forms. Much of this support came from the institution coordinators or TESSA workshop facilitators, however we noted an additional layer of support that drew on the collegiality of co-working.

"In every session we tried to compare notes to see who is doing what and how different it is from what I am doing. So yeah it was [...] the group sharing the challenges and strengths" (Lecturer, Site R).

Lecturers from sites with team working were certain that this mode of working, particularly in the early stages of the versioning process, was key in providing encouragement, stimulating ideas and building confidence and understandings of the process. This was reinforced by the comments of the TESSA Curriculum Director.

"Team-working definitely helped people to be more confident about making changes. I know they would think, I'm not sure if I like this but I don't know whether to change it or not... if you can talk this over with someone in your group it helped to shape the changes and develop them. I did feel that when they were the only one it was limiting" (TESSA curriculum director).

The initial workshops, where groups of subject specialists worked independently but at the same location, also inspired competitiveness between the groups.

"At the ... workshop I remember the Social Science people went off into the library and came back with some bits and were vocal about how they were going to use them. Other groups got quite interested and then they went off and did some research too" (TESSA curriculum director).

Lecturers commented that team-working encouraged them to use examples drawn from across their country context. Type C changes demand up-to-date knowledge of the curriculum and type B amendments require knowledge of both the immediate local context and that from across the country. Working in groups helped to facilitate this broader inclusion of knowledge.

"And let's think about the environment... if for example they had given an example that was too hilly and we were talking about the name Karanja, we would try to give a coastal environment. We were trying to make sure that we draw on the group's

prior knowledge to look across the whole country so we don't miss anybody. So we wouldn't just use Mrs Karanja, we would also think about Mr Karanja to represent both men and women. We were trying to look at all the various communities and what activities and norms take place within these communities" (Lecturer Site Q).

However it was only truly in the face-to-face workshops that lecturers had space for ongoing discussion and collective construction of changes to the OER; in other environments with ready access to the web such interaction might be supported in a Wikipedia type process. A challenge for the TESSA community, without extensive and easy online access, is the continuation of this adaptation process and recording of TESSA experiences, without the funding to give the external support available in the initial phases of the project.

Practical factors

The third theme we have identified relates to the role of the template and the practical facilities available to lecturers as they undertook the task of adaptation.

The template for the study units was felt to bring numerous advantages. It removed the pitfall, noted in other projects, that adapting leads to suggestions for additional content rather than the replacing of existing content with locally specific material. The template minimised the chance of repetition of content. Equally importantly it provided structure and transferability. The template ensured the consistency and coherence of the materials – both as independent study units and as part of the broader module and subject area - was preserved. Finally the template reduced the need to spend resources on design and layout. These funds could be directed towards new illustrations, critical reading and editing.

On the other hand the template may have restricted the lecturers' perceived freedom to make significant changes to the materials. In the interviews lecturers suggested that while they saw the task as creative, they did not feel it was a major undertaking.

It was noted by the curriculum director that more changes were carried out in the workshops than in the follow-up period. This was particularly noted for site R where the initial workshop was held at another university with ready access to the internet and a library. We have already suggested how the collegial support available in the workshops facilitated a greater number of changes, however, we also suggest the influence of environmental factors. Without access to sources of information provided by the internet or a library, (as well as the skills to make use of it) the range of examples drawn upon by lecturers is limited. This may seem obvious but in the circumstances of Sub Saharan Africa most lecturers have only limited access to the internet and their institution libraries are poorly stocked.

"When you are at the workshop and there is so much enthusiasm and you are working with the internet and there is a library, so much adaptation can take place... when you can't do that, everything is slower" (TESSA Curriculum Director).

Interestingly no lecturers used local teachers themselves as sources of support for the versioning; they drew on their own teaching experiences but didn't visit schools for the explicit purpose of gathering more local material (e.g. examples of pupils' work

from that region). Quite possibly they didn't see this within the remit of the task, or they felt that they were expected to use their own expertise, or perhaps quite simply time was too limited.

Cross cultural working inevitably holds many challenges; the main source of tension in this process was deadlines – different perceptions of their meaning and importance between the Open University, UK and the TESSA partner institutions. Often these deadlines were tied to funding milestones and determined by administrators outside the immediate TESSA team. What was perceived to be realistic from the perspective of a British university was often not possible when means of communications were unreliable, where ICT competence and confidence were low and where internet access was sporadic.

“Really it was to keep a finger on the pulse, it was to keep gently prodding in the nicest possible way. Of course the OU is run by deadlines and TESSA is no different. So that the OU deadlines set for TESSA sometimes weren't realistic, but nevertheless they were important because they drove it on, otherwise we might never have finished. So although we used to moan about them it was absolutely right that we had them. We were forever adjusting them but that's what deadlines were about. They gave us leverage to actually say look we need the work” (TESSA Curriculum Director).

Reflections on OER adaptation and international transfer

The TESSA adaptation process described here was a major undertaking consuming considerable resource, involving a dozen workshops to generate nine versions of the generic 75 study units. Driving this through dominated TESSA project working for almost a year and absorbed considerable financial resource. We found ourselves exploring new territory; there were no prior exemplars or blueprints of working at such a scale across different cultural contexts with original OERs. Analysis of the 'products' - the different versions - revealed that the overall number of changes or adaptations was modest. So was this process worthwhile? We suggest that the investment in the process was hugely valuable; its value lay in the process, the shared experiences of the participants rather than the material outputs.

Adaptation of the OERs, as described here, paid attention to the lecturers' own 'experienced worlds' as they came into contact with new models and engaged in new practices – the critique, modification and use of the OER. Developing these practices can be described as the formation of a community of practice; merely one of the several communities in which each lecturer participates (Wenger, 1998). Through the TESSA workshops lecturers engaged in a joint enterprise with a shared repertoire; this shaped their learning of the nature of OER and fostered ownership of the OER (SAIDE, 2009) - a blurring of the division between content producer and content user (Downes, 2007). For many of the lecturers access to this community in the TESSA OER process, even though their subsequent participation may have been limited or peripheral, has been sufficiently significant to contribute to their identity; negotiation of local forms of the practices within a wider African context have been particularly important – the interplay of 'the local and the global' (Wenger, 1998). Within the local communities of practice judgements were negotiated and made meaningful by and for members of that community.

From our experience the process of adaptation of OER can take many forms and should not be restricted to digital working - the goal is not technological literacy (although this may be a useful secondary outcome) but the development of educational commons through collective effort (SAIDE, 2009). Collective effort does not in the first instance, we suggest, need to be digitally facilitated, although to realise its full potential for sharing, OER adaptations will need to be transferred into a digital format and harness digital processes. But rather key is building relationships with others, linking with the socio-cultural notion of learning as movement deeper into practice (Wenger, 1998).

Underpinning the TESSA OER is a notion of teacher learning informed by socio-cultural theories of learning. (Bruner, 1996) It is conceptualised as social, jointly constructed with pupil partners and peers; distributed, shared over the people, activities and artefacts within the environment; and situated – linked to the circumstances in which it occurs, particular working practices and their associated ways of thinking. Learners’ knowledge – whether that of the teacher or her pupils – is seen to be deeply context dependent. In this approach we are drawing on the ideas of situated cognition thinkers who argue that knowledge is ‘not separable from the activity and situation in which it is produced’ (Murphy, 2008:32). Rather knowledge is seen as socially constructed through a process of negotiation within particular cultural contexts; the activities from which learners’ knowledge is constructed are intimately linked to that knowledge. (Murphy, 2008). This has implications for the selection of scenarios, problems and examples within learning materials; these need to be authentic to the learner; be accessible and valuable to them. Learners need to know the value and purpose of what they are learning if they are to make effective sense of learning opportunities. Hence if the activities described in the TESSA OER are set within a scenario which is not within the experience or arena of the teacher, or their pupils, then the knowledge developed is unlikely to be applied to their own situation. (Lave & Wenger, 1991) But this is not merely of relevance to teacher and pupil learning within the TESSA OER, in this view of learning, congruence with the culture and task authenticity is essential in OER for learners across levels and situations.

OER potential offer global access to high quality learning materials (Smith & Casserly, 2006). We agree with Smith and Casserly’s invoking of ‘Sen’s position that ‘knowledge is an enabler of freedoms’’ (2008, p274) but suggest that within the dynamic process of knowledge evolution we need to pay greater attention to the nature of the knowledge in the OER, its selection and sources – whose cumulative wisdom is included – and give status to personal experiences as a source of knowledge. So far the OER field has been dominated by a few producers, mainly from North America and Europe, serving many consumers across the globe. But central to OER is the notion of modification of the materials allowing teachers to generate differential materials according to the social context and values such that interactions between learners, teacher, environment and learning tasks are effective. This later process, and its implications for OER production and dissemination, appear to have received little attention to date.

Making content (OER) available to others is relatively easy; ensuring that it is useful is much more difficult. Other commentators have suggested that there are three main challenges associated with OER use; lack of awareness of copyright issues, quality assurance and sustainability (Huyen, 2008). Conole and Weller (2008) suggest that

in addition part of the lack of uptake is linked to the design of the OERs; they propose a toolbox of support for design.. We find this convincing but would wish to add that considerably greater attention needs to be paid to the processes of adaption of the OER - supporting colleagues in reflecting and modifying the selection of examples and tasks to ensure that they recognise the wider social and cultural context for learning and their learners' experiences and opportunities. We suggest that local communities of practice are where efforts for capacity building of OER should be focussed; empowering lecturers to move beyond merely adopting OER from external producers to developing their agency to make judgements about modifications appropriate to their own context.

Acknowledgement

With thanks to Jessical Auman, the TESSA intern, for her assistance during the data collection stage of this study.

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