OPEN EDUCATIONAL RESOURCES TO SUPPORT TEACHER EDUCATION ACROSS CULTURAL CONTEXTS: FINDINGS FROM THE TEACHER EDUCATION IN SUB SAHARAN AFRICA PROGRAMME (TESSA)

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Summary

This paper offers an emerging typology for the integration and use of the TESSA Open Educational Resources in a variety of university-led primary school teacher education programmes across Sub Saharan Africa. Through 2009 over 200,000 teachers will engage with the TESSA resources.

The TESSA consortium (13 African institutions delivering teacher education across 9 countries of Sub Saharan Africa together with 5 international organisations) has collaboratively designed and produced an extensive bank of Open Educational Resources (OERs) to meet the need for resources to guide and grow teachers’ classroom practices in school-based modes of teacher education. The resources have been contextualized to take account of local conditions, needs and practices across the nine countries. Partner institutions are now using the resources in range of teacher education programmes. We suggest that the forms of TESSA OER integration and study across the TESSA partner institutions can be grouped as; highly structured; loosely structured and guided use. Characteristics and examples of each form are described and factors which influence these forms proposed. We suggest that consideration of these factors is relevant to effective use of OERS in other work based professional learning programmes.

Introduction

The sharing of educational resources openly and freely offers us a powerful means to expand learning opportunities for all children, young people and adults (D’Antoni, 2009). More equitable access to high quality educational materials is enhanced and, equally importantly, communities across the world can contribute to the creation, modification and improvement of educational material (OECD, 2007; Smith & Casserly, 2006). But whilst many OER projects claim impressive visitor figures for downloading or merely browsing materials, little is reported on how these materials are being used across different environments and the impact of their use on learner’s achievements in programmes
and courses. In this paper we describe the latest activity from the TESSA international consortium (Teacher Education in Sub Saharan Africa; www.tessafrica.net); an OER project created by, and working across, nine countries in Sub Saharan Africa to improve the quality of and extend access to, university-led teacher education in nine countries of Sub-Saharan Africa. Currently TESSA is focused on teacher preparation and in-service professional development for the basic (primary) sector.

Context

Across Sub Saharan Africa the challenges facing education systems have been well documented. In the basic education sector international attention frequently focuses on the headline figure of 4 million - the additional teachers who will be needed to meet the ambitions of the EFA goals (UNESCO 2007, 2008). But any planning for teacher education must also include the professional development needs of existing teachers; many have had little or no training for their role. Across the region the minimum level of teacher qualification varies but in general official standards are lower in Sub Saharan Africa than in other regions. Even so only four countries report all teachers meeting their requirements. (UNESCO 2006) In the Congo and Mozambique less than two thirds of teachers meet the minimum international standard of lower secondary education completion. Existing teacher training colleges and institutions have limited capacity to expand and there is an imperative to retain teachers in classrooms with their pupils, particularly in rural locations. Across the globe we see increasing interest in different forms of school-based modes of teacher education and in harnessing the tools offered by new information and communication technologies, including Open Educational Resources, to offer large scale provision (Moon, 2007). These initiatives not only increase capacity for teaching training systems but offer opportunities to enhance the articulation between theory and practice and more effectively support teachers in becoming reflective practitioners. Prof Sineda from the Open University of Sudan, a member of the TESSA consortium, describes this in his context

‘...there is a big difference between learning and training, and here at the Open University of Sudan this is the distinction we believe in. The training of teachers and training teachers to develop the skills to learn concepts. And this, we believe, requires good, structured, supervised teaching practice.’

Interview 5 February 2009

Such school based teacher development programmes demand resources and references materials to guide and grow teachers’ classroom practices. In many locations in Sub Saharan Africa capacity in developing such materials is limited.

TESSA (Teacher Education in Sub Saharan Africa)

Since its inception in 2005 the TESSA consortium of eighteen institutions has worked collaboratively to design and build a multi-lingual Open Educational Resource bank, modular and flexible in format (see www.tessafrica.net). At the heart of the TESSA OER bank are sets of practically focused study units designed to directly improve teacher classroom practice; each of the 75 study units contains a series of activities for teachers to carry out with their pupils. These activities centre on clearly defined strategies for teachers to think about and experiment with in their classrooms. Guidance for teacher educators is provided showing how study units link together and student progression is supported through each module (collection of 5 study units).

Each study unit has been adapted and versioned to the nine country contexts of participating TESSA institutions including translation to Arabic, English, French and Kiswahili. The design
of the TESSA web environment is organized to enable each country / institution to have their own web presence and because of the current challenges in connectivity and access the study units are provided in a range of formats. The template for the TESSA study units together with the design, versioning and development processes are fully explained in earlier descriptions of our work (Wolfenden, 2008).

Integrating TESSA OERs

The first phase of TESSA focused on design and production of the study units and web space. But considerable resource was also devoted to planning for use of the study units in partner institutions. Partner institutions are engaged in delivery and accreditation of a large number of different types of courses and programmes; pre-service, in-service, on campus, distance learning, Certificate, Diploma and B. Ed together with non-accredited short professional development courses. For example, the Open University of Sudan is responsible for training all teachers in service; many of these teachers have no certificate other than that from secondary education and current teacher enrolment is around 100,000.

There has been no blueprint for integration of the TESSA OERs into this vast range of programmes and courses; rather implementation is a dispersed and decentralized process. The TESSA framework takes account of the knowledge and problem solving abilities which exist within each partner institution (Elmore, 2000). Within the professionally supportive structure of the consortium each institution is given the freedom to decide on the programme(s) or courses, selection of TESSA OERs, mode of access of OERs and so on to best meet local needs and context.

TESSA coordinators at each partner institution, who occupy a variety of institutional roles, are key to the change process. Their knowledge of the social structures within which they are operating, the competing agendas and the relative influence of different layers within their institutions, are crucial in understanding the potential effects of the chosen implementation strategy for the TESSA OERs. The delegated discretion accorded to TESSA coordinators in each TESSA partner institution enables them to develop the most direct path for greatest impact on teachers’ practices in their context. They provide the connection between the pedagogic frameworks of the TESSA resources and approach and the detail of practice in schools (Elmore, 2000a).

Forms of integration

Through 2009 over 200,000 teachers are planned to engage with the TESSA OERs across 9 countries - Ghana, Kenya, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Uganda and Zambia. Analysis of the form and mode of use of the TESSA OERs in partner institutions suggest that these can be grouped as:

- Highly structured
- Loosely structured
- Guided use

The highly structured model is characterized by production of a ‘guide’ or course book of activities or study units drawn from the TESSA Resource Bank – a learning journey with TESSA materials. In some cases these TESSA materials are interspersed with other activities, narratives and exercises. Teacher engagement with issues of particular relevance has been strengthened by the addition of commentaries and prompts for the teacher to consider as they think about enactment in their own classrooms. These books or guides
have generally been designed by senior academics for teachers on distance education courses, supported by tutors or supervisors. They thread together whole TESSA study units or sections from within study units. Key proponents of this model in the TESSA consortium have been the National Teachers’ Institute (Nigeria) and the Open University of Sudan. Both institutions operate distance education at large scale; many of their students will be located in rural areas with little chance of access to the internet or regular support from institution staff. However distribution channels for hard copy materials are well established. At the Open University of Sudan academics have undertaken a comprehensive mapping exercise with the TESSA materials against both the teacher training curriculum and the school pupil curriculum to pull together a book of TESSA study units. This book will be used by all students in the third and final teaching practice of their B Ed. This year the cohort numbers 53,000. In Sudan, as in many countries across the world, the pupil curriculum is highly controlled and fixed but by careful linking of the TESSA activities with the school curriculum, TESSA materials can be used ‘without alienating headteachers’. (Prof Sineda, Open University of Sudan, 2009). The National Commission for Colleges of Education in Nigeria (a federal government body) has created similar books based on TESSA materials – one for each area of the primary curriculum with ten classroom activities (drawn from TESSA study units) alongside a dedicated teacher educator manual. These books are to be used with all pre-service teachers across Nigeria.

In what we have termed the *loosely structured model*, lecturers in partner institutions have selected TESSA study units to use in their own courses. This selection, usually at workshops, has involved matching the learning outcomes (typically highly subject knowledge specific) of selected existing modules to the curriculum focus of the TESSA materials. The following table shows an example from a workshop with lecturers at Egerton University in Kenya (October 2008):

<table>
<thead>
<tr>
<th>B Ed (primary)</th>
<th>Theme Topic</th>
<th>Suggested TESSA module / section</th>
<th>Suggested TESSA activities</th>
<th>Teacher Learner Outcomes</th>
</tr>
</thead>
</table>
| PECI 111      | Exploring 3D Shapes | Module 2 Section 3 | - Collecting 2 D objects  
- Sorting the shapes  
- Naming of these shapes  
- Real-life applications of these shapes  
- Identifying and counting vertices, edges and faces.  
- Construct and fill table for faces, vertices, edges.  
- Make nets | Consolidation of distinguishing features of 2D and 3D shapes. Increased skills in use of practical activities to investigate and show relationships between 2D and 3D |

In this model lecturers have used the selected TESSA resources in a variety of ways; teachers carry out the TESSA activities in schools and report back at the next tutorial or support session; in micro-teaching sessions; in face-to-face lectures and in tutorials.
Examples can be seen on distance education programmes at Egerton University (Kenya), Mckerere University and Kyambogo University (Uganda) and the University of Zambia. Course structures here involve punctuation of distance study with relatively long intense face to face sessions (typically during the school holidays) and relatively lower student numbers. Students are given copies of the individual TESSA study units or expected to source their own copies from the TESSA website or reference hard copies held by the institution. Some institutions are beginning to distribute CDs of the TESSA materials to students. In a variation on this model colleagues at the Open University of Tanzania are constructing a new diploma course for teachers drawing heavily on the TESSA materials, a bridge to the more highly structured model.

**Guided Use:** In this model no pre-selection of TESSA materials is undertaken by university academics; teachers on various courses select (from the TESSA website) the most appropriate study units for their own needs, devising their own learning pathway through the material. At OLA teacher training college in Cape Coast Ghana (working with the University of Cape Coast) the student timetable has been amended and all students have one session per week in the computer labs to browse and study the TESSA materials – choosing activities and resources to use in their assignments, on campus micro teaching and teaching practice in local schools. Students are also encouraged to contribute to the TESSA Forums. The implementation of this session forced students to create email addresses and become familiar with use of the web. The recent arrival of a wireless network on this college campus has lead to the sight of a few students browsing the TESSA website on their personal laptops around the college verandas and grounds. At the University of Winneba (Ghana) students have formed a ‘TESSA Club’ – they meet weekly in the university campus to discuss TESSA materials and their experiences of using them. Similarly students on B Ed courses at the University of Pretoria (South Africa) are required to select TESSA materials to use during their teaching practice and discuss their experiences during group reflections and in an individual survey at the end of the practicum. Key to use of this model is access to the TESSA website by individual teachers; however experiences at OLA in Ghana have shown that teachers do not need individual internet enabled devices to become part of the TESSA community.

**Choice of integration model**

Initial analysis of these different forms of integration reinforces our earlier discussion that to fully exploit the potential of OERs they need to be available in a form that is conceptually strong whilst sensitive to local environments to allow for use across different contexts (Wolfenden, 2008). Several factors appear to be influencing and interacting to determine the way in which the integration and use of the TESSA OERs is occurring across the partner institutions: institutions’ existing cultural practices in terms of the level of direction exercised over curriculum materials and degree of autonomy of lecturers and students to select material; scale of course or programme delivery; availability of technology enhanced tools to access the OERs and the frequency and intensity of support during the practicum. Interestingly the level (Certificate, Diploma or B Ed) of the programme does not appear to be important.

We suggest that consideration of these complexities of local circumstances and needs is important in designing both the OERs and establishing appropriate conditions to support their use.

**Next Steps**

At the heart of TESSA is an attempt to change the way teachers and learners interact with each other and knowledge; a shift in teachers’ understandings of the nature of their learners’ role in their own learning. This is as relevant to teacher educators as teachers. In this next phase of TESSA activity (2009 – 10), each partner institution will be paying close attention to
monitoring and evaluating the use of the TESSA OERS in their programmes; looking at concrete actions and changes in teachers’ practices in their classrooms and practices of teacher educators. A variety of instruments are being explored across the consortium including analysis of teacher portfolios and assignments, surveys and classroom observation.

However we anticipate that initial changes will be modest and unevenly distributed; teachers are often hesitant about changes in practice, they need time to experiment and grapple with the ideas of learning underpinning the TESSA approach and encouragement, guidance and observation of others can be critical in supporting such changes in behaviour. The design of TESSA has been such that at several levels participants (teachers, teacher educators and academic leaders) are able participate as collaborators in a network of social relations rather than solo practitioners; for each the TESSA forums, workshops or advisory council meetings provide space for engagement in a network and conversations with a focus on issues of practice. The challenge is to help teachers and others engage in productive conversation in these spaces. (Leach, 2000).

Our typology of implementation activity will, we hope, provide us with a framework for study of the impact of these different forms of OER implementation at scale. We suggest such analysis will be useful for other projects developing OERS to support work based professional learning.

References

• UNECSO (2008) *Education for All by 2015: Will we make it*, Paris