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Using OERs to improve teacher quality: emerging findings from TESSA

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Using OERs to improve teacher quality: emerging findings from TESSA

Theme 3: Formal Education (Revamping Teacher Education)

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INTRODUCTION

The last decade has seen tremendous progress in primary pupil enrolment across much of sub-Saharan Africa but unfortunately in many areas this has not been accompanied by an improvement in pupil achievement. Attention and priorities are now expanding to embrace close scrutiny of the processes of classroom teaching and learning. Governments and donor agencies across the region are engaged in promoting a pedagogical paradigm shift to improve pupil attainment; a learner-centred classroom approach with pupil-teacher construction of knowledge through active inquiry. But to date systematic adoption and embedding of these progressive teaching methods has been limited and pupil learning achievements continue to be low.   Much recent research on African classrooms shows that the dominant mode of teaching remains a teacher-led transmission style in which pupil talk is restricted to short, often chorus, answers to closed questions. (Pontefract and Hardiman, 2005; Akyeampong et al, 2006; Altinyelken,2010; Henevald et al, 2006; Mtika & Gates, 2009)

Recent UNESCO EFA reports draw attention to the importance of teacher quality for improving pupil achievement in schools and the key role of teacher education in shifting modes of interaction in African schools to those which more fully support pupils' cognitive and linguistic learning (UNESCO, 2010). Teachers are potentially key agents of change. However such a focus on teachers is not unproblematic. Several issues act to inhibit or constrain progress:

-    many teachers in primary schools in Sub Saharan Africa have little or no formal training for the role (Mulkeen, 2009)
-    for many teachers the greatest influence on their teaching is their own experience of classroom learning as pupils but new teachers cannot be assured of finding examples of good pedagogic practice either in their own experiences of schooling or in the performance of their colleagues when they begin teaching.
-    a dearth of materials which encourage teachers to enact 'constructivist' ideas within their classrooms on a regular basis. Many teachers find it difficult to translate ideas from training courses into classroom practice and to use textbooks in other than a formulistic way (Heneveld et al, 2006).
-    limited opportunities for continuing professional development opportunities (Mulkeen, 2009).
-    a dissonance between the teaching and learning approach as described in the primary National Curriculum and the curriculum of the teacher training colleges, for example in Zambia.

Without intensive in-service training the move towards more interactive classrooms with more effective teaching and learning will be slow. And without shifts at scale new teachers emerging from colleges will become quickly socialised in the predominant teacher-centred pedagogic practices of the schools in which they work. (Mtika & Gates, 2009)

TESSA (Teacher Education in Sub Saharan Africa)

Working through a strong and vibrant network of institutions involved in teacher education, TESSA has conceptualised an innovative response to these challenges, scalable for application across different cultural and linguistic contexts. This comprises a large bank of highly structured, activity based OER study units which teachers, either on formal programmes or through self-motivation, work through in their own classrooms with their pupils.

TESSA is Africa's largest teacher education network. Since 2005 it has focused on the creation and use of Open Educational Resources (OERs) to improve the quality of, and extend access to, school based teacher education at scale. (Moon, 2007)

Through collaborative TESSA working we have identified key skills, values and competencies for teachers working in resource challenged environments across the region, audited primary curricula and created a framework for TESSA OER study units. These draw on social constructivist theories of learning to support teachers in experimenting and extending their repertoire of classroom practices. Central to TESSA OER are a series of activities for teachers to enact in their own classrooms and case studies which offer examples of these new images of practice within their own experienced world. Within the units a succinct, accessible rationale for the approach is offered; techniques and methods are not separated from an explanation of the broader pedagogy from which they are derived and are presented within the context of the relevant primary school curriculum. Crucially the resources recognise both the limited teaching aids which teachers are able to draw on and their existing practices. For example whole class teaching is not abandoned in favour of exclusive small group work but rather teachers are guided to refining and structuring this mode of teaching to engage the whole class in scaffolded active construction of meaning. Whole class teaching remains a central part of their repertoire alongside other techniques. (Wolfenden, 2008). Thus teachers are supported in developing a culturally responsive pedagogy.

The core set of 75 TESSA OER study units (Science, Literacy, Mathematics, Social Studies and the Arts, and Lifeskills) has been adapted and localised for different cultural and linguistic contexts and is now available in 12 versions (4 languages) through the TESSA web space (www.tessafrica.net).

Use of TESSA OER

Since their completion in 2008 TESSA OER have been integrated into teacher education programmes according to local needs, cultural, financial and policy environments. Data from early 2010 across 13 partner institutions in 9 countries shows:

- o TESSA OER in use in 19 programmes (including B Ed, Diploma, Certificate and unaccredited CPD programmes)

- o 690 teacher educators familiar with TESSA OER; in addition the Open University of Sudan reports awareness amongst 1,935 teaching supervisors

- o 303,300 teachers enrolled on programmes which use TESSA OER.

TESSA resources are OERs, freely available in a variety of formats through the website. It is not possible for us to know exactly how many teacher training institutions are drawing on the resources to enhance their provision or the full extent of their use by teachers. TESSA OER form the basis of a 'Creative Pedagogy' module at the Mauritius Institute of Education - not one of the original 13 partners; The Ministry of Education in Togo have initiated adaptation of the TESSA materials for use in Togo, again without TESSA sponsorship. As internet access increases it is likely that more teachers will use the TESSA tool kit directly to enhance their skills and further institutions will embed the use of TESSA resources in their programmes.

In previous accounts of the project we have characterised modes of use of TESSA OER in programmes as 'highly structured', 'loosely structured' and 'guided'. (Thakrar et al, 2009).

The 'highly structured' model is based on institution sponsored production of a 'guide' or course book of activities drawn directly from the TESSA Resource Bank. Institutions adopting this mode of use, such as the National Teachers' Institute (Nigeria) and the Open University of Sudan, are characterised by extremely large scale operations across immense geographical distances, low levels of internet connectivity and established channels for production and distribution of print materials. (See Appendix 1 for details)

Individual lecturer or tutor choice of TESSA study units and integration into their own courses or seminars is termed the 'loosely structured' model. Student teacher and lecturer access to the TESSA study units is frequently through print form, sometimes through off-lines modes (CD, datastick or institution intranet) and occasionally through the TESSA website. A characteristic of this model is inclusion of TESSA OER in assignments which form part of the course final assessment – either as a piece of work for the teacher's portfolio or as part of a classroom observation or micro-teaching, as at Egerton University (Kenya) and Kyambogo University (Uganda).

Relatively easy or regular access to the internet is essential in the 'guided use' model seen at Our Lady of Apostles Training College in Cape Coast, Ghana and the University of Pretoria. Here teachers select from the website the most appropriate TESSA study unit or activities for their own needs, devising their own learning pathway through the material.

In all cases TESSA OER are supporting, and challenging, African teachers to experiment and reflect on their classroom practices.

Studying the TESSA Use

Over the last year we have engaged in critical investigation of the uptake and use of TESSA OER in partner institutions. The exercise was intended to provide a snapshot of TESSA activity, to understand the ways that teachers' practices, values and beliefs shape the forms and outcomes of use of the TESSA OER and to provoke reflection in partner institutions to inform decisions about directions and forms of future TESSA OER activity. Our starting point has been an examination of teachers' classroom practices with the TESSA OER. (Chisholm & Leyendecker, 2008). There has been no attempt to undertake cross cultural comparisons or to measure pupil learning gains.

Partner institutions selected samples of schools and / or teachers, devised instruments for data capture and collected, collated and analysed quantitative and/ or qualitative data, with support from colleagues from the Open University. The multitude of methods across the consortium was intended to facilitate foregrounding of the contextual realities of implementation and the individual experiences of teachers in their unique environments. We were anxious to avoid presenting TESSA as a predefined set of skills and strategies for teachers to master; partner institutions were encouraged to take a holistic approach to practices in the classroom, acknowledging that teaching at any one moment is dependent on a multitude of factors including cultural traditions and material conditions.(Vavrus, 2009; O'Sullivan, 2006) We hoped a multitude of methodologies, each appropriate to the particular institution, would leave open the possibilities of unintended findings arising from TESSA use.

Three examples illustrate the range of activity across the thirteen institutions:

At the Open University of Sudan a selection of TESSA OER has been compiled into a handbook to support teachers in their third cycle teaching practice in the B. Ed (distance mode for in-service teachers). Study of the handbook is compulsory and teachers are expected to integrate strategies from the handbook into their lesson plans and try them out in the classroom. Teacher and pupil experiences with TESSA are captured in short written surveys completed by teachers and their supervisors; each teacher on the programme is visited by a supervisor on three occasions during the teaching practice period, visits include both classroom observation (to include ideas from the TESSA handbook) and detailed follow-up discussion. A complementary small reflexive photography project was also undertaken with 15 teachers. These teachers were given disposable cameras to document 10 – 20 significant moments over a three week period. Through choosing what to capture on film the

teachers had the opportunity to represent important aspect of their teaching practice that may otherwise be overlooked and rejected. The act of taking photographs was intended to encourage reflection and engagement with the learning process. (Bird & Buckler, 2010) Following printing of the images, teachers were invited to participate in a semi-structured interview with a researcher; here each teacher was asked to select three photographs from those they had taken and discuss why they were significant to them and what the moments captured in the photograph represented in terms of their pupils' learning.

At the University of Fort Hare in South Africa TESSA OER enhance a number of programmes including the Advanced Certificate in Education and the B.Ed programme. Colleagues began by conducting a survey amongst academic colleagues to compile narratives of their experiences of TESSA OER use. Following this they sought views on TESSA use from local stakeholders - subject advisers in the local Eastern Cape Department of Education; these colleagues collaborated on use of TESSA in teacher CPD workshops. Finally UFH academics undertook classroom observations of teachers on the B.Ed programme - these teachers had been exposed to the TESSA OER in their tutorials and symposia.

Colleagues at the University of Cape Coast, Ghana, used participant diaries over a period of 8 weeks with two groups; in-service teachers studying on an evening class programme at the Institute of Education, and pre-service teachers at a local affiliated Teachers' College. All were studying for a Diploma in Basic Education and had encountered TESSA OER as part of this programme.

Emerging Findings from TESSA use

Initial analysis of the data reveals two common themes:

A much more diverse set of teaching practices: Richer questioning and answer sessions, teaching methods that encourage problem solving (and creativity), use of the immediate external environment to the school, small group work where pupils had clearly defined roles to support dialogue and whole class 'games' and greater pupil dialogue were noted both in lesson plans and observations across the partner institutions. In many cases teachers were observed employing a mixture of methods within lessons and making choices contingent on their conditions of teaching, for example space and time. In almost all cases teachers or headteachers or supervisors reported that much of this observed activity had not taken place prior to use of TESSA OER and a direct drawing on TESSA OER could be seen. But, in-depth interviews with teachers and analysis of their journal entries at several sites suggested that in many cases these techniques and ideas were not entirely new to teachers and they were familiar with a related teaching strategy or concept; a teacher in Ghana describes a TESSA inspired lesson on fractions using biscuits but then explains that previously he would have used strips of paper to teach this particular topic.
Description within the TESSA materials linking constructivist ideas with classroom activities, clearly sanctioned by the teacher training institution, appear to give teachers' confidence to experiment with such ideas in their own classroom. We refer to this as 'legitimisation' and suggest this has much in common with the findings of other commentators - Akyeampong (2006), Barrett (2007) and Varvus (2009). In an environment where the dominant expectations of classroom interactions do not embrace dialogue and negotiation with pupils, it is not surprising that teachers have been reluctant to experiment; trying out ideas can be difficult, challenging of teachers' professional identity and diminishing of their confidence.

Increased teacher preparation: In many of the TESSA studies we see an increased focus on teacher preparation; teachers studying at the Open University of Sudan admitted that previously 'they didn't see the need to prepare before using the handbook, they just picked up the curriculum where they'd left it in the last lesson.' But through lesson preparation, although initially a burden, the teachers began to feel more in control of their teaching and the pupil learning. The episodic nature of the TESSA materials encouraged teachers to check that pupils understood one concept before moving onto the next and the range of assessment suggestions supported a more broader understanding of assessment – previously many teachers considered assessment to be limited to weekly tests. Such integration of assessment provides teachers with ongoing feedback about the effectiveness of the teaching

and learning in their classroom and, in many cases, enhanced their confidence. This increased focus on lesson preparation is promising; other studies have noted the impact of planning on pupil learning (Heneveld et al, 2006).

Other findings from teachers engaged with TESSA include increased enjoyment, amongst both pupils and teachers; Egerton University note 'confessions that teaching has become interesting or fun'. Several institutions reported on the value of membership of the TESSA network; a teacher in Ghana records, ' TESSA resources offered me the opportunity to know how colleagues teaching in other parts of Africa are teaching similar topics that are in the Ghanaian syllabus.' A few teachers were observed beginning to create activities based on ideas from TESSA; as yet not many have shared these through the TESSA website.

In addition we note an impact on teacher educators at partner institutions; introduction of TESSA OER has lead to
-   increased awareness of OER and their potential in education programmes;
-   changing notions of the role of the teacher;
-   improvement of writing skills and use of TESSA materials as a template for creating their own materials;
-   personal learning, through involvement in a rich international community of educators and exposure to different working environments.

However some partners stress that using TESSA in departments requires considerable commitment and motivation; this can restrict engagement when there is limited capacity for innovation.

Challenges and constraints

Use of TESSA OER is not unproblematic. Perhaps the greatest challenge is access. Although we are witnessing rapid growth in internet connectivity across Sub Saharan Africa, regular easy access to the internet remains an aspiration for the majority of primary school teachers. Access for faculty at some partner institutions is also difficult; neither power nor connectivity are robust and in many cases individuals have neither machine nor desktop connectivity. For teachers the entire TESSA print materials are 'too bulky' to carry easily – although many teachers expressed a wish to have print copies in their school for reference. CDs offer an interim solution but access to computers remains a challenge, both physical access and the skills to negotiate round the materials with ease. Low levels ICT skills, leading to anxiety about use of TESSA materials, are reported amongst teacher educators as well as teachers.

The second challenge is time; time for users to explore TESSA and identify resources of most relevance to their own situation; time for users to adapt resources for their own teaching context and time to undertake the activities with pupils in the classroom. Many teachers conditioned their enthusiasm for TESSA materials with concern that curriculum coverage could be slower when TESSA type activities are used. But evidence suggests that teachers who persist see higher levels of pupil achievement in standard tests, however support and confidence are essential to sustain use.

Such concerns about progression through the standard curriculum are one of a number of external factors constraining teachers' use of the materials - examination/ assessment systems, head teachers and district officials' opinions, material infrastructure of the school including restricted classrooms and resources and large class sizes, can all deter and diminish usage of more interactive classroom pedagogies. Teachers express concern that they will be perceived to be introducing an alternative curriculum with TESSA use and spend much time negotiating between the different professional expectations from their training course and the norms of the school community, particularly the head teacher. We see a strong need to strengthen head teachers' capacities to lead and coach teachers to improve their teaching; teachers' views of 'good' teaching are heavily influenced by comments from those in supervisory positions and others in their school community (Varvus, 2009).

Concluding remarks

Ideas within the TESSA materials are not new; the TESSA innovation is the development of a sustainable model for creation and use of highly structured classroom based OER across numerous cultural and linguistic contexts.   TESSA has received grant funding from a number of sources to support project working such as workshops, partner meetings and secretariat and Executive functions but crucially this external funding is not used to support use of TESSA at partner institutions; each institution has committed its own financial resource for access - duplication and distribution, of the TESSA OER to both staff and students. For example NTl in Nigeria funds the design, printing and distribution of the many thousands of handbooks and course materials with integrated TESSA OER and at Egerton University in Kenya copies of the TESSA materials (in print and CD format) are resourced through the B Ed programme. We are confident this model of implementation will ensure that TESSA use will survive and grow even when grant funding is exhausted. TESSA partner support and dissemination to the wider teacher educator community in Sub Saharan Africa is gradually evolving to model of peer dialogue, support and innovation through a much wider dispersed OER Network of Teacher Educators – supported initially by the Hewlett Foundation.

The extent of use of TESSA OER in teacher education programmes is testimony to their success in meeting demand and supporting teachers in experimenting and building on nascent ideas of constructivist learning. But there is much to do to support teachers in fully utilising the OER to improve the effectiveness of their classroom interactions. There is a clear need for validation or endorsement of the use of TESSA OER from head teachers, district officials and other stakeholders including parents. This advocacy work is a priority for institutions working with the TESSA OER. Greater modelling of progressive pedagogies in the work of teacher educators is also an area for development as we move forward with embedding the use of TESSA OER.

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Appendix 1 Illustrative examples of TESSA implementation

Country/ Institution	Course	Level	Pre-Service or In-Service	Delivery Mode	Number of Teachers Using TESSA	Form of TESSA Use	Duration of course / programme
Ghana							
University of Cape Coast	B.Ed	Primary and Secondary	Pre-Service	Campus-Based		Loosely Structured	4 years
	Diploma in Basic Education	Primary	In-Service	Distance learning with campus based lectures	400		3 years
University of Education, Winneba	B.Ed	Primary and Secondary	Pre-Service	Campus-Based		Loosely Structured	4 years
	Professional Diploma in Mentoring	Primary and Secondary	In-Service	Self-Study	650		1 year
Kenya							
Egerton University	B.Ed Primary	Primary	In-Service	Distance learning with campus based lectures	500	Loosely Structured	4 years
Nigeria							
National Teachers' Institute	MDG Teacher Re-Training	Primary	In-Service	Face-to-face workshop	5,000	Highly Structured	6 days
	FTS Teacher Orientation	Primary	In-Service	Face-to-face workshop	45,000		6 days
	State Teacher Retraining	Primary	In-Service	Variable, predominantly workshops	145,000		6 days
	Nigeria Certificate in Education (NCE)	Primary and Secondary	In-Service	Distance learning / face-to-face tutorials	80,000		4 years
Rwanda							
Kigali Institute of Education	B.Ed	Primary Teacher Educators	In-Service	Campus-based, face-to-face	370	Loosely Structured	4 years

Country / University	Programme	Level	Service	Delivery Mode	Enrolment	Structure	Duration
South Africa							
University of Fort Hare	School of In-Service Programmes (SISP): Advanced Certificate in Education (ACE)	All levels	Pre-Service and In-Service	Campus delivered	290	Guided	2 years
	SISP: B.Ed	Foundation and Intermediate	Pre-Service and In-Service	Campus delivered	1,200		4 years
University of Pretoria	B.Ed (on-campus)	All levels	Pre-Service	Campus-based, face-to-face	1,800	Guided	4 years
	B.Ed (distance)	All levels	In-Service	Distance learning / CD-Rom	1,700		4 years
University of South Africa (UNISA)	B.Ed	All levels	In-Service	Distance learning	2,012	Guided	4 years
Sudan							
The Open University of Sudan	B.Ed Primary	Primary	In-Service	Distance Learning / Study Centres	1,500	Highly Structured	3 years
Tanzania							
The Open University of Tanzania	Diploma in Primary Teacher Education	Primary	In-Service	Distance Learning	500	Highly Structured	2 years
Uganda							
Kyambogo University	Diploma in Education Primary External	Primary	In-Service	Distance Learning with 3 fortnightly face-to-face sessions/year	1st yr – 858 2nd yr - 1,493	Loosley Structured	3 years
Makerere University	B.Ed (distance)	Primary	In-Service	Distance Learning	400	Varied	3 years
Zambia University of Zambia	B.Ed Primary	Primary	In-Service	Face-to-face on campus but can do 1st year at distance	400	Loosely Structured	3 years