



TESSA

TEACHER EDUCATION IN SUB-SAHARAN AFRICA

Formative Evaluation Report

by

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¹ Stakeholder feedback resulted in a small number of technical corrections. At the same time, it is noted that interpretations, inferences and conclusions remain those of the evaluators.

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Acronyms and abbreviations

B.Ed – Bachelor of Education
BEEP - Bilingual B.Ed Programme
CETDAR – Centre for Teacher Development and Action Research
CLING - Community Literacy and Numeracy Group
COL – Commonwealth of Learning
CPD – Continuing Professional Development
DfID - Department for International Development
DEPE – Diploma in Education Primary External
Dip. Ed – Diploma in Education
DPE – Diploma in Primary Education
DPTE – Diploma in Primary Teacher Education
ECD – Early Childhood Development
ECCD – Early Childhood Care and Development
EFA – Education for All
FET – Further Education and Training
HEI – Higher Education Institution
ICE – Institute of Continuing Education
ICT – Information and Communication Technology
ITE – Initial Teacher Education (also know as ‘pre-service’)
ITEK – Institute of Teacher Education, Kyambogo
KIE – Kigali Institute of Education, Rwanda
MA – Master of Arts
MDG – Millennium Development Goal
M.Ed – Master of Education
MoE – Ministry of Education
NCCE – National Commission for Colleges of Education
NCE – Nigeria Certificate in Education
NSE - Norms and Standards for Teacher Educators
NGO – Non-Governmental Organization
NPDE – National Professional Diploma in Education
NTI – National Teachers’ Institute (Nigeria)
OBE – Outcomes-Based Education
ODL – Open and Distance Learning
OER – Open Educational Resources
OLA – Our Lady of the Apostles (College of Education, Ghana)
OU – Open University (UK)
OUS – Open University of Sudan
OUT – Open University of Tanzania
PCK - Pedagogical content knowledge
PES – Primary Education Studies
PGCE – Postgraduate Certificate of Education
PGDE – Postgraduate Diploma in Education
PhD – Doctor of Philosophy
PTC – Primary Teachers’ College
PTE – Primary Teacher Education

RPL – ‘Recognition of Prior Learning’
Saide - South African Institute for Distance Education
TEAMS – Teacher Education at Maximum Scale
TESSA – Teacher Education in Sub-Saharan Africa
ToR - Terms of Reference
TTC – Teacher Training College
UBE – Universal Basic Education
UCC – University of Cape Coast (Ghana)
UEW – University of Education, Winneba (Ghana)
UFH – University of Fort Hare (South Africa)
UNZA – University of Zambia
UG – Undergraduate
UNESCO – United Nations Educational, Scientific and Cultural Organization
UNISA – University of South Africa
UP – University of Pretoria
UPE – Universal Primary Education
VSO – Voluntary Service Overseas

EXECUTIVE SUMMARY

Introduction

The Teacher Education in Sub-Saharan Africa (Tessa) project was initiated in 2005. The project has three specific objectives:

- a) create a network of African universities, working alongside The Open University (OU), UK and other international organisations to focus on the education and training needs of teachers in Sub-Saharan Africa;
- b) support the exploration and development of school-based modes of teacher education in which teachers develop their competencies and skills to meet the need of pupils in their own classrooms;
- c) design and build a multilingual Open Education Resource (OER) bank, modular and flexible in format, that is freely available to all teachers in the region.

At the time of this formative evaluation, TESSA was functioning as a network of national and international organizations led by the OU and comprising 13 institutions in Ghana, Kenya, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Togo, Uganda and Zambia. Through partnerships and collaborative endeavour, TESSA has created 75 adaptable OER units for primary school teacher training adapted and translated for four languages: Arabic, English, French and Kiswahili. These units model an inclusive activity-based pedagogic approach to teacher and pupil learning.

Evaluation TORs and Process

The present commissioned formative evaluation was carried out by a team of two independent evaluators between May and September 2012. The evaluation sought to enhance understandings of the way TESSA works and its achievements, as well as inform future TESSA activity and sustainability. Further, the evaluation process was intended to be a learning experience for the TESSA community and to make recommendations, informed by local conditions, for programme enhancement. Following the Terms of Reference (ToR), this evaluation was guided by the five issues addressed under 'Key Findings' below.

In line with the ToR, the evaluation employed an in-depth qualitative, open-ended, context-sensitive research design to enable understandings of the influence of the local social contexts and educational realities on the various configurations of TESSA implementation. Research *depth* was provided by in-depth case studies at three TESSA partner institutions, while research *breadth* was afforded by more limited analysis of TESSA activity across all TESSA partner institutions.

Data collection methods involved individual and focus group interviews as well as administration of semi-structured questionnaires to teacher educators and teachers. A total of 141 respondents were interviewed (individually and in focus groups; 110 from partner institutions and 31 from non-partner institutions). The evaluation was also informed by: project documentation as well as research and conference papers published by the Network partners; case studies conducted by Coordinators in each of the partner institutions; and the OU's study of educational policies in the countries of partner institutions. The evaluators have confidence that the pool of evaluation data is sufficiently large, representative, and varied to allow for a credible evaluation. Overall, the greatest limitation of this evaluation is that no written account can

adequately capture and represent the sincerity and passion of the first hand accounts of teacher educators and students who had worked with and experienced the TESSA materials.

Key findings

Partner institutions' 'take up' and use of TESSA

With regard to the question as to how the TESSA OER are being used in each partner institution and the relative success of different models of use, in terms of scale, there has been very considerable 'take up' of TESSA materials. The TESSA OER have been used in programmes with almost 300,000 enrolments of teacher-learners and in-service teachers across a wide range of programmes in all partner institutions. TESSA has taken hold in different kinds of settings and contexts, in different models, and for different purposes. This was evidenced by:

- the varied national policy contexts in which TESSA has thrived;
- a variety of certificate, diploma, and undergraduate degree programmes (both initial and in-service) delivered by partner institutions using TESSA OER and preparing teacher-learners across all phases of schooling;
- deployment of TESSA resources for all core content subject and curriculum areas as well as for both contact and distance modes of teaching;
- TESSA incorporation in both 'highly' and 'loosely' structured modes of curriculum integration;
- use of the OER in the development and delivery of new programmes initiated either by HEIs themselves, or in response to government mandate.

Notwithstanding successful 'take up', sustainability is flagged as an issue to consider. TESSA flourishes in the hearts and minds of teacher educators and their teacher-learners, and is certainly woven into the fabric of faculty practices. Nonetheless, in contact teaching programmes, where TESSA has been incorporated by an individual lecturer, sustainability is potentially threatened by staff mobility. Further, while there is evidence that management in partner universities has been convinced of the merits of TESSA, by and large, TESSA is not formally inscribed in curricula or in faculty statutes or guidelines. By contrast with contact teaching programmes, however, TESSA's security of tenure appears to be assured in the distance programmes (which also account for the great majority of students). In such programmes, the integration of TESSA into curricula in ways that maintain and enhance programme design has involved much staff collaboration in carefully planned and structured processes. Learning materials thus developed are assets not easily discarded.

The influence of TESSA on teacher educators and teacher-learners (identity and practices)

Teacher educators had encountered TESSA in different ways because of their own past experiences as well as their own different locations across the disciplinary/subject areas in teacher education. For some, TESSA was something completely new, and impact was expressed as "an eye opener" or even "a revelation". In the case of those already familiar with the theory and practice of learner-centred, activity-based methods, TESSA reinforced or cemented existing philosophies. Most importantly, the OER provided the means of achieving their ideals. Overall, TESSA has had *significant* impact on the identity and practices of teacher educators and a *profound* impact on those of teacher-learners. It has fused theory and practice; shifted perceptions from teacher as a "know it all" to "teacher as facilitator of learning"; and greatly

enhanced the relevance of pupils' learning experiences. The materials have been used in creative ways to meet the real needs of teachers and learners. Actual use of the materials has by and large represented forms of practice that correspond with best professional practices as described by leading education theorists.

Reasons for this impact, as advanced by teacher educators and teacher-learners, were numerous. They include judgements that TESSA:

- foregrounds and provides the resources and tools for activity-based learning;
- does not begin by providing abstract 'theory', thereby alienating practitioners by placing the onus on them to find their own ways of enacting theory. By simply employing the user-friendly TESSA tools and resources, practitioners are inducted, naturally and almost by default, into best professional practice;
- makes child-centred, activity-based and reflective practice real, and achievable.

TESSA has thus done much more than simply provide materials that are sufficiently generic and policy compliant to be useful in almost any context.

TESSA Networks: type, activities and effects

'Networking' was conceptualised as a powerful means of developing and embedding the project and its resources in partner HEIs and in supporting school-based modes of teacher education. The TESSA network has grown far beyond the original TESSA consortium partner institutions. The diversity and complexity of TESSA networks that have been established between and among TESSA Coordinators/partner institutions and other actors, authorities and initiatives in teacher education and development, reflect not only a legitimate challenge to the traditional model of approaching education reform initiatives from the centre (seat of bureaucracy) to the periphery (grassroots), but also provide a good case study on how to cascade education reform initiatives from the 'bottom' to the 'top' (from the grassroots to the centre). Through networks, education reform (policy in some cases, and practice in most cases) is slowly but steadily being taken to the ministries of education. Positive effects (intended and unintended) of the networks include:

- some faculties have begun working closely with schools, for the first time;
- research has been fused into teaching;
- the principle of activity-based materials for external programmes has been accepted as is the case at Makerere University in Uganda;
- TESSA materials are being used for the training of school inspectors, head teachers, professional teachers, and unqualified as well as volunteer teachers in Ghana;
- colleges of education have been drawn into TESSA networks and OLA College in Ghana, which was not among the original 13 TESSA partner institutions, now presents a case of exemplary TESSA practice;
- TESSA has not only helped inform the national ECD curriculum in Ghana but has also been approved by the Teacher Education Division of the Ghana Education Service;
- vibrant communities of teacher education practice have emerged.

The Role of ICT in enabling or Constraining TESSA

ICT capacities and capabilities have worked both to enable and constrain aspects of TESSA implementation. Where steady, flexible and affordable access to ICTs is enabled, TESSA OER uptake and use has been high. However, in most of the cases, the predominant use of print and CD modes of access to TESSA OER has largely constrained both access and adaptability, and to some extent could undermine anticipated gains in pedagogy. Specifically, lack of ICT infrastructure makes access to the materials more difficult and expensive (thus thwarting the potential of OER to benefit those most in need of free resources). On the other hand, inability to access and use the materials in digital form can limit pedagogy to *adoption* of materials rather than *adaptation* to meet particular needs in particular contexts. This limits opportunity for teacher-learners to exercise their agency in fully developing their professional skills.

An overall judgement on TESSA impact

TESSA is a pioneering project that has tackled, head on, the most intractable of all challenges facing teacher education and schooling in SSA – quality. It has been innovative in merging educational theory and modern technologies into a model that is also strategically pragmatic, and thus workable. It is a highly successful project, achieving its aims at scale. This has immense implications and promise for all teacher education in SSA. The critical key indicators of success include not only significant project ‘take up’ in diverse settings and the significant impact on the practices and identities of teacher educators and teacher-learners. There has also been substantial impact, through networking, on schooling and other educational agencies. Some degree of impact on ministries of education is evident. Notably, impact has been achieved despite limited ICT infrastructure and expertise.

Issues for taking the project forward

Seven key points/issues were identified for their potential to inform thinking about the future trajectory of the project. The seven issues, not sequenced in order of importance or priority, are:

- 1. Retain and build on project logic and research networks** as a way of ensuring a firm foundation for establishing and consolidating TESSA activity. Cementing the research culture at faculty level and extending inter-partner research networking would offer benefits to all stakeholders and also make project participation more attractive to teacher educators, who, as members of the university community, are expected to be productive researchers as well as good teachers.
- 2. TESSA in relation to national policy:** Initial fears of disjuncture with national policy occurred mainly where TESSA was understood as content rather than as methodology. In such cases, there were concerns that education officials might frown on use of TESSA materials. While an objective view suggests that anxieties about TESSA’s compliance with national policy were not well founded, perceptions are real in their consequences. The project could use its experience to identify strategies that help allay anxieties about TESSA’s compliance with national policy.
- 3. The role of Project Coordinator:** Project planning placed heavy reliance on Coordinators. That confidence has been justified, and Coordinators must indeed take the lion’s share of credit for project ‘take up’. However, there is a fragility associated with reliance on any one individual, and succession issues can lead to project setbacks. They carry the danger of loss of networks as well as of ‘institutional memory’. At the opposite end of the spectrum, a very different dynamic that occurs when a Coordinator occupies the role for a long period of

time. While the benefits of such a situation were amply demonstrated during the evaluation - the individual becomes the 'face' of the project to the extent that s/he is seen as TESSA, or as the TESSA 'brand'. Should TESSA be seen as a brand? After all, it is a package of accepted theory and best practices - it is not a new theory or paradigm vying for acceptance.

- 4. TESSA as part of a fully coherent teacher education programme:** A weakness in some instances of TESSA 'take up' might be that it has operated in isolation of important components like professional studies and educational studies. In order to link theory and practice at the level of course design in a way that would facilitate the curriculum to realize optimal coherence and impact, thought could be given to ways of inserting TESSA *within* rather than *alongside* the rationale or philosophies that underpin programme design. When this is achieved, teacher-learners can truly say, as one Kenyan teacher did: "TESSA is in me."
- 5. TESSA and institutional type:** Distance education programmes offer the most promise of being good hosts for TESSA. As institutional types, however, Colleges of Education present themselves as promising sites for TESSA extension, while OLA College - although ironically not a partner institution - was found to be the institution in which TESSA was most deeply embedded.
- 6. ICT infrastructure:** As already pointed out, problems in this regard emerged very clearly in the evaluation. It is appreciated that the problem of lack of ICT infrastructure is beyond the control of the project. Nonetheless, *awareness* and *accessibility* remain two key factors that influence and even determine the uptake and utilization of TESSA OER. Future TESSA activities could yield greater impact if they simultaneously target awareness as well as accessibility, including training.
- 7. TESSA and (teaching) practice:** Appropriately, the most common form of assessment across partner institutions is related to the practices of teaching. In some, assessment is based entirely on the student's performance in the classroom. How such assessment might be conceptualized and carried out is a matter of key importance. In Nigeria, the NTI has already embarked on such an initiative. There could be much merit in further encouragement for the development of protocols for assessing teaching practice, particularly if it were a collaborative effort across networks that have evolved in the TESSA community.

TESSA

TEACHER EDUCATION IN SUB-SAHARAN AFRICA

Formative Evaluation

NOTES ON READING THE REPORT

The complexity and scale of the TESSA project are mirrored in the Terms of Reference for the present formative evaluation. There is indeed a tension between, on the one hand, the need to contain the length of the report and, on the other, the need to do the project justice. In compiling this report we have probably privileged the latter. While attempting to keep the report simple, throughout, we have not wanted to err in making it simpler than reality.

The report is certainly long. We believe it is best read in its entirety. However, those familiar with the project, and wanting a condensed but complete overview of findings, might wish to go direct to the Conclusion (section 5). Findings are followed by considerations that might inform thinking about the future of the project.

Others not wishing to read the report in its entirety may wish to refer to the Table of Contents for guidance on selective reading:

- Section 1 covers the background to the project and the present evaluation.
- Section 2 provides detail on the evaluation questions, the evaluation plan, and the data assembled.
- Section 3 covers the context of the project, including all partner institutions but focusing in particular on three in the form of case studies.
- Section 4 addresses each of the five evaluation questions in turn. After project 'take up' and the integration of TESSA materials into courses are addressed in 4.1, the next two sections (4.2 and 4.3) cover TESSA impact on the practices and identity of teacher educators and teacher-learners respectively. Sections 4.4 and 4.5 review the role of project networks and ICT in enabling or constraining the unfolding of the project.

A note on terminology:

(i) Students, Student teachers and Teacher-learners: Across different countries, individuals enrolled in programmes from which they emerge as qualified teachers are referred to variously as 'students' (particularly when they attend lectures); or as 'student teachers' (particularly when 'students' are involved in practice teaching; or as 'teacher-learners' (usually irrespective of whether they are on 'practice teaching' or not.) In this report we use the term 'teacher-learner', but because term 'student teacher' was also used by many respondents and interviewees we quote, interchangeability in the use of terminology is unavoidable.

(ii) 'Initial Teacher Education' and 'Pre-service' programmes: When describing the programme that qualifies teacher-learners for teaching, some of our respondents used the term 'pre-service'. We use the term that appears to be gaining greater currency, 'Initial Teacher Education' (ITE).

1 BACKGROUND TO THE FORMATIVE EVALUATION

This report is a formative evaluation of TESSA activity against its key purpose, namely, improving the quality of Teacher Education programmes. While such an evaluation does not require a history of TESSA, the project has distinctive aims and features that are an essential part of the background against which impact is best viewed.

1.1 TESSA RATIONALE AND AIMS

Sub-Saharan Africa (SSA) requires more than half of the 1.9 million new teachers needed to achieve Universal Primary Education by 2015. With millions of children emerging from primary school with reading, writing and literacy skills “far below expected levels”, the quality of education remains low (UNESCO, 2011: 5). *Access* and *quality* are clearly the two main obstacles to achievement of the United Nations Millennium Development Goals in respect of universal primary education.

Initiated in 2005, the TESSA project aims to provide open educational resources (OER) and associated support for teacher educators and teachers in SSA as a way to expand teacher education and improve the quality of the programmes offered. Key objectives were to:

- create a network of African universities, working alongside The Open University (OU), UK and other international organisations to focus on the education and training needs of teachers in Sub-Saharan Africa;
- support the exploration and development of school based modes of teacher education in which teachers develop their competencies and skills to meet the need of pupils in their own classrooms;
- design and build a multilingual Open Education Resource (OER) bank, modular and flexible in format, that is freely available to all teachers in the region (*TESSA Newsletter*, February 2012).

1.2 THE DISTINCTIVENESS OF TESSA

1.2.1 KEY FEATURES OF THE TESSA PROJECT

Key features of TESSA are summarized under the headings of project logic, model of professional development, strategy, and scale.

(a) Project logic

For the founders of TESSA, the starting point to the immense challenges of education in SSA was not “starting with changes to systems and frameworks” (Wolfenden, 2011; 4). Instead, TESSA places the teacher and the teacher educator at the centre of efforts to improve the provision of education. While this approach seems so obvious as to be unremarkable, it is one that international agencies, perhaps because of their over-riding concern with access to schooling, appear to have fully acknowledged only recently. For example, Goal 2 in the UN’s Millennium Development Goals is the achievement of universal primary education, but as Dladla and Moon point out: “There is little reference to teachers” (2012, in press). However, the authors point out

that in more recent times there are signs that the crucial importance of the quality of the teacher is beginning to be recognized. This same trend is evident in recent reports issued by UNESCO, the UK-based Voluntary Services Overseas (VSO), the UK's Department for International Development (DfID), the World Bank, and UNICEF. For their part, national ministries have by and large placed faith in policies to increase the level of teacher qualifications as a means of supporting new national ideals together with economic development. A disturbing feature of sub-Saharan Africa is the tendency of national ministries to view teachers in deficit mode, in need of being 'fixed up', with the result that professional development is not rooted in personal growth models likely to encourage reflective practice (Christie et al, 2004).

(b) Model of professional development

Based on the development and use of open education resources (OER), TESSA is a classroom-focused model of teacher education. Although TESSA does not foreground its underpinning theory, the model is clearly aligned with the 'school-based' model of teacher education premised on the belief that teacher learning "cannot occur in college classrooms divorced from practice..." (Darling-Hammond, 2008: 3). It is equally aligned to 'situated learning' theory which holds that learning is most effective when it takes place in socially interactive ways in the same context in which the practice takes place (Lave and Wenger, 1991).

TESSA's theoretical premise is reinforced by pragmatism. In the words of the founder of TESSA, "the 'bricks and mortar' institutions developed around teacher education to serve the needs of the twentieth century will be wholly inadequate for the twenty-first" (Moon, 2000: 756). Simply put, a new model is needed in which "Training must happen *in* school – not *away* from the school".² The issue is not simply one of geographic location. The problem is that the residential campus-based model of teacher education tends to come together with a curriculum that, in its conceptualization, is insufficiently school-based. This fundamental flaw explains why the TESSA school-based model harnesses new communication technologies in promoting a new role for teacher training institutions: supporting school-based teacher development. It is a model that addresses, head-on, the old problem of schism between theory and practice.

Donor agencies and African governments (the latter perhaps at the behest of the former, in some cases) have promoted learner-centred pedagogies. TESSA avoids the rhetoric of learner-centredness (which confused South African teachers, for example, with its evangelical promotion) but models the use of learning materials in ways that lead teachers into practices that are inherently learner centred.

(c) TESSA strategy of implementation

In contrast with many funded projects, TESSA began with a well-theorized idea and strategy, and no funding. In piloting and testing its idea, the OU was able to draw on its own experience of developing a school-based curriculum utilizing electronic modes of communication in its own Post-graduate Certificate in Education (PGCE). This, together with the OU experience of producing learning resources and the technology of taking these to large numbers of students, provided a basis for developing and piloting the new model of teacher education for SSA with

² Interview with Bob Moon, May 2012.

existing partners such as the University of Fort Hare in 2003-2005. In this regard it is worth noting a further difference with most funded projects: the initiative did not commence with bilateral agreements with national ministries. Consistent with its emphasis on the importance of the field of practice, initial engagements were with the OU's existing teacher education networks.

Piloting involved identifying "key skills, values and competencies for teachers working in resource challenged environments" (Wolfenden et al, 2010: 1).

Known as 'TESA' during the piloting phase, the initiative was formally launched in the more personable form of 'TESSA' in 2005. Apart from continuity with the OU's own approach to education and its associated activities, TESSA appears to have been unfettered by a logframe-type model of implementation. Far from being shackled to the logframe's linear theory of causation, the project was able to place recognition of *context* and *culture* at the heart of its implementation strategy. By design, the OER units are structured in a way that allows for ready adaptation to local contexts. In embedding TESSA units into their own programmes, institutions were encouraged to exercise their own choice of 'highly structured', 'loosely structured', or 'guided' approaches to curriculum incorporation (Wolfenden et al, 2010: 2).

An undated document titled 'The TESSA approach to change: a note' provides an apt description of the TESSA strategy:

Implementation is ... seen as a dispersed and decentralised process with discretionary activity occurring primarily within identified programmes and courses of partner institutions. TESSA coordinators, 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 implementation strategies. The delegated discretion accorded to TESSA coordinators enables them to develop the most direct path for greatest impact on teachers' practices in their context (undated: 2).

Based on early successes, the 'Extending and Embedding TESSA, 2010-2012' phase of the project was launched with the aim of developing "a more in-depth understanding of the ways that TESSA Open Educational Resources (OER) are being used, and to develop ways of increasing their use in teaching in Ghana, Kenya, Nigeria, South Africa and Sudan" (TESSA Newsletter, February 2012: 1).

(d) Scale of TESSA reach

At the time of writing TESSA was functioning as a network of national and international organizations led by the OU and comprising 13 institutions in Ghana, Kenya, Nigeria, Rwanda, South Africa, Sudan, Tanzania, Togo, Uganda and Zambia. The full list of core project partners is:

- Egerton University, Kenya
- Kigali Institute of Education (KIE), Rwanda
- Kyambogo University, Uganda
- Makerere University, Uganda
- National Teachers' Institute (NTI), Nigeria

- The Open University of Sudan (OUS)
- The Open University of Tanzania (OUT)
- University of Cape Coast (UCC), Ghana
- University of Fort Hare (UFH), South Africa
- University of Education, Winneba (UEW), Ghana
- University of Pretoria (UP), South Africa
- University of South Africa (UNISA)
- University of Zambia (UNZA).

Other key members of the TESSA network include: The Commonwealth of Learning (COL); the National Commission for College of Education (Nigeria); and the South African Institute for Distance Education (Saide).³

Through partnerships and collaborative endeavour, TESSA has created 75 adaptable OER units for primary school teacher training in Arabic, English, French and Kiswahili. These units model an inclusive activity-based pedagogic approach to teacher and pupil learning.

This makes TESSA the largest initiative of its kind in Africa.

1.2.2 TESSA AS A SUBJECT OF EVALUATION

From the above it is clear that TESSA was somewhat ahead of its time in recognizing teacher quality as the key need within a new model of teacher education that redresses the imbalance between the rub of theory and practice. This, together with the scale of TESSA reach, makes TESSA a singularly important project for evaluation.

Any evaluation of TESSA would need to recognize that, of all challenges facing teacher education and schooling, TESSA has attempted to tackle the most pressing and intractable of all, and in sites that represent great need.

The present formative evaluation was commissioned to take place between May and September, 2012.

³ The major funding for TESSA has come from the [Allan and Nesta Ferguson Charitable Trust](#), the [William and Flora Hewlett Foundation](#), the [Scottish Government](#), the [Commonwealth of Learning](#), the [David and Elaine Potter Foundation](#) and the [Waterloo Foundation](#). The [UK Department for Education](#) provided funds for the initial feasibility study and The [British Council](#) provided early funding to develop and evaluate distance teacher education programmes at mass scale in Nigeria and Sudan. OU alumni have contributed towards study visits and research scholarships. <http://www.TESSAfrica.net/about-TESSA> (accessed 11 July 2012)

2 THE EVALUATION PLAN AND PROCESS

At its commencement the project prioritized gaining purchase and momentum for its ideas. Research came later, and when it did it was prodigious. There is now an impressive collection of papers on the project contributed by network partners. However, it is almost entirely from within the project (the Open University and partners), covering particular project aspects and case studies.

The rationale for formative evaluation arose from the need for a more holistic overview of TESSA, from the perspective of ‘new eyes’. It was to enhance understandings of the way TESSA works and its achievements, and to inform future TESSA activity and sustainability. The evaluation process was intended to be a learning experience for the TESSA community and to make recommendations, informed by local conditions, for programme enhancement.

2.1 EVALUATION QUESTIONS

The evaluation was guided by the following questions:

- 1) How are the TESSA OER being used in each partner institution and what is the relative success of different models of use?
- 2) What is the influence of TESSA on teacher educators (identity and practices) at partner institutions?
- 3) What influence is the use of TESSA OER having on experiences and developing knowledge and practices of teacher-learners at these institutions?
- 4) Given that the teacher education network is still new, to what extent are TESSA participants interested in and participating in the Network? What Network activities would be most useful for TESSA partners? What is the engagement of partners with institutions at district, national and international level and structures associated with teacher education - the relation of this engagement to TESSA and any emerging outcomes linked to TESSA activity?
- 5) What has been the role of ICTs in the process of TESSA implementation (at different levels; teacher education institution level; individual)?

In this revised sequence of questions taken from the evaluation Terms of Reference (ToR), these questions thus focus on institutions’ use of TESSA (1), impact on teacher educators and teacher-learners (2 and 3), and the role of networks and ICT in enabling or constraining implementation (4 and 5).

In line with the ToR, the research design has an in-depth qualitative, open-ended, context-sensitive design to enable understandings of the influence of the local social contexts and educational realities on the various configurations of TESSA implementation. Research *depth* is provided by three in-depth studies at three TESSA partner institutions; research *breadth* is afforded by more limited analysis of TESSA activity across all TESSA partner institutions.

A good recent overview of evaluation methods argues that: “We need to reshape evaluation to take the local setting not the project or program as its unit of analysis” (Carden, 2010: 3). Acknowledging Pawson (2006), the author argues that causal mechanisms are best explored through multiple case studies which afford the opportunity for comparison and triangulation.

Causal mechanisms ... recognize context is key and that it is critical to understand the differential impacts of an intervention or a program on different groups in society, in different settings and at different times. Causal mechanisms are intended to help understand why change happened, who was affected, in what ways and in what contexts (Ibid:7).

The approved evaluation design⁴ with its research questions thus provides a template for an evaluation with the potential to inform thinking about possibilities for moving the project forward.

2.2 OPERATIONALISING THE EVALUATION QUESTIONS

2.2.1 DATA ASSEMBLED FOR THE EVALUATION

From commencement, the evaluation was informed by the extensive repertoire of project documentation as well as published research and conference papers. Extensive use was also made of the complete set of [case studies](#) conducted by Coordinators in each of the partner institutions. Data collection and analysis also had the benefit of reference to the OU’s study of educational policies in the countries of partner institutions.⁵ As a full account of policies in all partner countries would be far beyond the scope of the present evaluation, reference to actual policy is made only in cases where it was instrumental in shaping respondents’ perceptions.

Evaluation activities in relation to the evaluation questions are specified in Table 1.

Table 1: Evaluation questions and associated evaluation methods and procedures

Evaluation question	Evaluation method and procedures
1. What is the pattern of TESSA use in partner institutions?	<ul style="list-style-type: none"> • Tables depicting use of TESSA in modules. Coordinators provided these tables in response to email requests for the most recent data on integration of TESSA materials into modules. • Personal interviews at three case study sites (see below).
2. What is the impact of TESSA on teacher educators (identity and practices)?	<ul style="list-style-type: none"> • Teacher educator questionnaire (see Annexure A) • Personal interviews at the three case study sites.
3. What is the impact of TESSA on teacher-learners?	Focus group interviews at Case Study sites: <ul style="list-style-type: none"> • Egerton (Kenya);

⁴ Drawn up by the Open University in association with the funders, the William and Flora Hewlett Foundation.

⁵ carried out by Alison Buckler.

	<ul style="list-style-type: none"> • University of Education, Winneba (Ghana); • University of Fort Hare (South Africa).
4. What network activities have been developed within the partnership and with other key stakeholders?	Analysis of network 'maps' produced by Coordinators representing all partner universities at workshops held at the three sites listed under no. 3 above.
5. What has been the role of ICTs in the process of TESSA implementation?	<ul style="list-style-type: none"> • Interviews with Coordinators, Academics, Students • Teacher educator questionnaires.

Case study sites were selected partly on the basis of pragmatic logistics. Egerton (Kenya), University of Education, Winneba (Ghana) and University of Fort Hare (South Africa) were sufficiently convenient sites for Coordinators from East, West and Southern Africa to assemble respectively. Beyond pragmatism, there was no reason for singling out these three universities to serve as case studies other than that they brought regional representation to the sample. In terms of their distinctiveness, there was evidence of different strategies for using TESSA materials; but none to suggest that they might have been selected as sites of 'best' practice in a way that would put a gloss on the evaluation as a whole.

Appendix A has the list of names of all those who were interviewed as part of this evaluation. Table 2 below reflects the numbers of interviewees and respondents to the teacher educator questionnaire across the various categories.

Table 2: Categories and numbers of interviewees

Categories of Respondents (all personal interviews unless otherwise stated as questionnaire responses)	# from partner universities	# from non-partner institution¹
Key personnel at The Open University, UK	6	
TESSA Coordinators from partner universities attending workshops at case study sites	14	
Senior managers such as Deans and Deputy Vice Chancellors (Academic)	5	
Academic staff who had incorporated TESSA into their modules	10	
Tutors using TESSA materials		9
Current students (teacher-learners) who had experienced TESSA materials and methodology	5	9
Former students exposed to TESSA, and now teaching in schools	14	4
Ministry officials	1	
Teachers in schools	6	
Academic staff who had incorporated TESSA into their modules (<i>respondents to 'Teacher educator questionnaire'</i>)	49	9

¹ **Note:** The non-partner institution reflected in the right hand column is OLA College of Education, Cape Coast, Ghana. Reasons for the inclusion of OLA in the evaluation are given below.

2.2.2 DATA COLLECTION STRATEGIES

Coordinators hosting the regional workshops arranged interview schedules for the evaluators in each of the three case study institutions. Two of the three interview schedules included activities that at first glance appeared to be beyond the scope of the evaluation questions. Each of the Egerton and UEW programmes included two visits to schools; and the UEW programme included a visit to OLA College of Education on the Cape Coast. The evaluators accepted what host institutions wished to demonstrate because this appeared to be consistent with project logic that institutions match materials with their own needs and use them in ways that are most contextually and professionally appropriate. In the event, the visits to schools yielded invaluable insights into strategies for embedding TESSA (see 4.1); and the visit to a college prompted insights into TESSA use in organizational entities other than universities (see 3.4).

In individual interviews, respondents were encouraged to view the relevant evaluation questions from their own perspective with minimal prompting from the evaluators. In group-interview situations, the evaluators encouraged disagreement and on occasion tried to provoke disagreement as a way of achieving greater clarity on judgements.

2.2.3 LIMITATIONS OF THIS EVALUATION

Apart from the challenge of holding together data capturing domains of both breadth and depth, the main challenge to evaluation arose from what emerged as one of the chief strengths of the project: its encouragement to institutions to use TESSA materials in contextually appropriate ways. The resultant diversity in use of TESSA materials across contexts and national boundaries compounded the usual challenges of evaluation.

Data collection from a range of varied stakeholders inevitably introduced certain logistical constraints. For example, in Kenya, Ghana and South Africa travel arrangements and delays reduced the amount of contact time with Coordinators who had caught flights to the case study sites from different countries. While the network mapping exercise was extremely fruitful, there was insufficient time for fully developed individual follow-up interviews using individual maps as a springboard for discussion. Subsequent questions and requests to Coordinators for further input were emailed at a time of year when numbers of academics were on vacation or at conferences. Delays in administering the Teacher Educator Questionnaire (Annexure A) placed pressure on data analysis and report writing.

Notwithstanding these difficulties, the evaluators have confidence that the pool of evaluation data is sufficiently large, representative, and varied to allow for a credible evaluation.

Overall, the greatest limitation of this evaluation is that no written account can adequately capture and represent the sincerity and passion of the first hand accounts of teacher educators and students who had worked with and experienced the TESSA materials.

3 THE CONTEXTUAL SETTING

We begin with a brief overview of TESSA activity in all partner institutions. Based on the Coordinators' case studies, this serves to provide a background picture of the range of TESSA activities across the partner institutions. This overview is intended to identify the main features of TESSA implementation that are common across all partners – it cannot realistically hope to identify what is distinctive of each.

As the concept of *context* is central to the TESSA model, this overall background is complemented by the three case studies. These illustrate ways in which project 'take up' assumed different forms in different contexts (as indeed envisaged in project conceptualization). To avoid repetition of case study data when the evaluation questions are addressed in section 4, the three case studies are presented as summarized outlines. In this sense they are somewhat bland, but in conjunction with the overview of TESSA activity in all partner institutions, they provide the building blocks for subsequent analysis.

3.1 OVERVIEW OF TESSA ACTIVITY IN ALL PARTNER INSTITUTIONS

The following overview is based on reports produced by TESSA Coordinators at each of their own partner institutions.⁶ These reports present a number of well-defined features of TESSA experience across all institutions.

a) A diverse profile of partners, representative of all types of institutions

The diverse profile of TESSA partners includes all types of higher education institutions (HEIs) as reflected in the following features:

Mode of delivery: Most partners are 'contact teaching' faculties that, like UCC,⁷ have also embarked on distance education initiatives. At UEW, the number of distance students now outstrips the number of 'contact mode' students on campus. In UNISA, OUT and OUS, the partnership includes dedicated single mode open and distance universities.

Teacher education in relation to institutional type: With the needs of universal primary education (UPE) as impetus, the NTI is a single mode institution created specifically to address needs in respect of the training, retraining and upgrading of teachers. The KIE is an institute that has similar origins, although with its four faculties it is not dedicated solely to teacher training. UEW is a more conventional university in that it offers degrees to PhD level, but it is dedicated solely to teacher education. In several other partner universities, the education faculties are but one of several faculties. UP, for example, has nine faculties.

Institutional identity: While most of the partner HEIs have traditions and links with orthodox western universities, OUS is a member of the Federation of the Universities of the Islamic

⁶ These case studies are referenced under the names of their authors, who are the Coordinators at each institution.

⁷ UCC's Centre for Continuing Education (CCE) has acquired sites in seven out of ten regions for the construction of permanent study centres. <http://ucc.edu.gh/aboutus/> (accessed 28 August 2012).

World. And again, while most have used the English version of the materials, KIE has adapted materials in French as well as English. OUT uses both English and Kiswahili versions, and OUS uses Arabic versions with the limitation that no TESSA resources have yet been developed for the teaching of Arabic and/or Islam studies (Zahawi, 2011).

TESSA materials used in a wide range of courses and for different purposes: In addition to the English version of the TESSA materials having been used by both first and second language speaking students, they have been used across a wide range of initial teacher education (ITE) and In-service programmes, and across certificate, diploma and degree programmes preparing students for varied phases of schooling as well as for tutoring positions in colleges of education. For example, at UP the materials have been used in programmes preparing teachers for all school phases from Early Childhood Development (ECD) to the Senior and Further Education and Training phases; in UCC the Coordinator was using the materials in the Masters' programme. At UFH, TESSA materials have been used in processes for 'recognition of prior learning'. In the NTI the materials have been used for a particularly wide range of INSET purposes, and here as well as in the KIE and OUS, the TESSA publication *Working with Teachers: A Handbook for Teacher Educators* has been used.

Scale of operation and influence of partner universities: Amongst the TESSA partners are institutions that are regarded as leaders in the regions in which they are located. A number occupy particularly strategic positions. OUT is the only public university offering a Diploma in Education in Tanzania, and UNISA's College of Education had an enrolment of 67091 in 2011. OUS, created partly in response to the raising of the minimum qualification of teachers to a B.Ed, has trained more than 90000 primary school teachers and 9000 secondary school teachers since 2003. KIE trains teacher educators for colleges; and Kyambogo and UCC are responsible for colleges of education in Uganda and Ghana respectively.

In short, for evaluation purposes, the range of institutions and programmes in which TESSA materials have been used affords a rich diversity of experience, and if this profile were viewed as a research 'sample,' it would be representative of all possible types of HEIs.

b) A strategy of trialing the materials and monitoring impact

Partner institutions adopted a measured approach to integrating TESSA materials into their offerings. To assess their applicability and suitability, materials were first mapped onto relevant courses. The scale of implementation was thus limited until there had been opportunity for reflection on the effectiveness of the approach. For example:

- When TESSA was introduced into programmes at UNISA in 2007, it was piloted with 360 students in a Literacy module. By 2009, four TESSA-infused modules were being offered to 7885 enrolled students; and by 2011, to 14571 students (Lenyai, 2011). Pilot experiences led to refinements in modes of implementation.
- At OUS, "TESSA units were mapped against pupil and trainee curricula and the handbook was designed and written around 14 key teaching strategies" (Zahawi, 2011: 5). As a result, modules at OUS were strongly framed with reference to the "context of teachers' work" (Ibid: 6).
- Research and development field-testing of TESSA materials took place in two of the projects in the NTI's 'Teacher Education at Maximum Scale' (TEAMS) Projects with 254

student teachers and 89 teachers across different states. This led to innovative use of the materials in different kinds of initiatives involving very large numbers of students.

- At UFH the mapping process involved subject advisers (ministerial officials) who served as “critical friends” (Sotuku, 2011: 7).
- Institutional issues at Kyambogo meant that TESSA use was at first “patchwork and opportunistic” (Kaije, 2011: 6), but then went to scale after being trialled in the Diploma in Education Primary External programme (DEPE).

Formal research involving TESSA impact on students was carried out at HEIs such as UEW, OUS, OUT and UP. In some cases the research was less formalized, but in all the case studies there is a clear conclusion: TESSA had had a marked impact on the level of student interest and on their understanding of interactive learning and assessment. Reports such as from OUT and UP provide instances of TESSA having changed assessment practices. OUT introduced formative assessment and assessment by portfolio. Students at UP were required to submit a portfolio on their adaptation and use of TESSA materials in practice teaching.

Pedagogy: From Coordinators’ reports it is clear that the need for TESSA materials was felt most keenly in courses that teach pedagogical skills and competencies, and in subject methodology courses (see, for example, Muganda, 2011: 6).

Challenges: Issues around the difficulty of accessing TESSA materials were foremost of the challenges mentioned by Coordinators. ICT problems were not only technical and logistical: the ICT competence of users was also an issue of concern. At the other end of the scale, curriculum conflict with national policy – in the minds of ministry officials, at least – was experienced but reported not to have been a major obstacle. Where it was, as at Egerton and UFH, it was reported to have been gradually overcome. OUS was taking measures to address conflict with “the more traditional teaching style by some federal staff” (Zahawi, 2001: 10). In cases such as KIE, the ministry was reportedly impressed by TESSA materials after having initially had, like their counterparts in Kenya, fears that the project diverted teachers from the national curriculum. More serious contact with the materials had led doubting officials rather to recognize the alignment of TESSA with the spirit of national policy. In Rwanda, for example, TESSA materials match the new teacher education policy (Rutebeka, 2011).

Having the benefit of more recent insights into TESSA implementation across the partner institutions, the present evaluation endorses Wolfenden’s (2011) formal overview of the twelve institutional case study reports. This overview concludes that across partner institutions, there have been significant benefits to teacher educators and their institutions as well as to schools and classrooms.

3.2 CASE STUDIES OF THREE NETWORK PARTNERS

The three case studies at Egerton, UEW and UFH provide more in-depth, nuanced insights into the very generalized features of TESSA implementation that we have identified across all partner institutions.

3.2.1 EGERTON UNIVERSITY (KENYA)

The National Context

Most of Kenya's Initial Teacher Education (ITE) takes place in colleges of education. Six colleges are dedicated to training teachers for the secondary level, and by offering the Diploma in Education, 21 colleges of education provide teacher training for the primary sector.

The Ministry of Education, Science and Technology is responsible for provision of administrative and professional services at national, provincial and district levels.⁸ Several of its agencies influence perceptions of teacher educators and teachers with respect to the legitimacy of teaching practices. Quality Assurance Officers (inspectors) exercise a powerful influence; and the Kenya Certificate of Primary Education (KCPE) is used for selection into Secondary Schools and Artisan courses (in youth polytechnics) for those who do not enroll in Secondary Schools. Numbers admitted into Secondary Schools are largely dependent on the number of places available, though according to the Ministry of Education the transition rate is now about 70%. With such a high-stakes exam it would be surprising if teaching were not powerfully exam-driven, and if teachers were not wary of embracing innovative methods of teaching.

The basic textbooks used in all subjects for all schools are prepared by the Kenya Institute of Education which functions as the National Curriculum Centre. The curriculum as well as teaching/learning materials are prepared at the Curriculum Centre where panels of specialists work in conjunction with others co-opted from the teacher training colleges, higher education institutions (universities) and the Directorate of Quality Assurance in the Ministry of Education. Teachers may, however, select books they find to be useful as supplementary material.

In-service teacher education is largely the preserve of universities offering the Bachelor of Education degree (B.Ed).

Teacher education and TESSA at Egerton University

The oldest institution of higher education in Kenya and one of its seven public universities⁹ is Egerton University, situated at Njoro in the Rift Valley. Having commenced at Egerton in the 1960s, teacher education is well established. Egerton joined the TESSA community in November 2005 when materials writing was initiated. Two of its staff were identified and trained in the versioning process, and one of these, Professor Keraro, was appointed by Egerton management to serve as the TESSA Coordinator. The Coordinator's first challenge was to justify the use of TESSA in Faculty of Education and College of Open and Distance Learning. The second was to 'sell' it to faculties and staff (Keraro, 2011).

⁸ SACMEQ (2012) Southern and Eastern Africa Consortium for Monitoring Educational Quality. <http://www.sacmeq.org/education-tanzania.htm> (accessed 20 August 2012).

⁹ There are twenty-nine accredited universities in Kenya (<http://www.4icu.org/ke/kenyan-universities.htm>) (accessed 20 August 2012).

Strategy for embedding TESSA

With no blueprint to follow, the Coordinator embarked on a two-fold strategy for embedding TESSA within and without the institution.

First, TESSA was introduced to the Egerton community through sensitization workshops. Staff were initially somewhat skeptical: what role were they expected to play, and what were the benefits? These questions were answered as lecturers mapped TESSA materials onto their curricula before selecting what was relevant to their courses. Nine courses in the B.Ed Primary Education and Diploma in Primary Education were identified as those in which TESSA materials were to be integrated along the lines of the 'loosely structured model' of implementation, i.e., teacher educators selected the particular materials relevant to their purposes. TESSA materials thus found a home in courses dealing with subject methodology. As one of the projects within each module, students were required to develop a resource, and then monitor and evaluate its use.

Second, the Coordinator extended the principle of mapping TESSA materials onto needs from within relevant taught modules to the broader school community its graduates serve. The Faculty went into schools to find out what needs were evident, and how TESSA materials could meet these needs. In so doing the Faculty showed keen awareness of the fact that new teaching approaches would be doomed if they were promoted in ivory towers isolated from the needs and constraints experienced by teachers in schools. This was particularly necessary in a system dominated by preparation for the high stakes KCPE (as above). Head teachers in particular needed to understand TESSA pedagogy.¹⁰ Workshops were held with head teachers, deputies, senior teachers and subject panel heads.

Working with schools by focusing on needs and ways in which TESSA materials could contribute to meeting these needs was a new experience for Faculty. In the words of the Coordinator, "we didn't know these schools before." Examples of workshop attendance on the part of Egerton staff, Ministry officials, and schools at which TESSA materials were used, provided evidence of inclusive new networks being established.¹¹

The breadth of the Egerton strategy for sensitization and for establishing TESSA is clearly reflected in the Coordinator's network map (see Annexure C). This map depicts:

- i) a materials development network;
- ii) induction and embedding processes within the institution, within faculty, and within programmes;

¹⁰ Prominent in the rationale for the DFID 'Independent Evaluation of the Kenyan Primary School Management project (PRISM), 1995 – 2000' was awareness of the fact that Head Teachers needed to have greater understanding of pedagogies being promoted in the SPRED projects if those were to be accepted and take hold in schools.

¹¹ TESSA workshop attendance list, 11 August 2011: 10 Egerton staff, 1 Nairobi University, 26 school teachers from 13 schools; 20 officials: 4 Directors (Basic Education, KIE, CEMASTEVA, Quality Assurance); 1 PDE Rift Valley; 4 D.E.Os.; 1 M.E.O.; 5 QUASOs; 5 TAC tutors.

- iii) the Ministry of Education, across a representative spectrum of relevant officialdom, and an NGO;
- iv) induction and embedding in schools.

What has been the impact of TESSA within the two domains of institution and broader schooling?

The 'embeddedness' of TESSA

At institutional and faculty level, there are no policy or curriculum documents to demonstrate that TESSA has been embedded at the structural level. *De facto*, however, it is clear that TESSA has a secure foothold. According to the Dean, the university had embraced TESSA at management level. In the view of the DVC (Academic), TESSA had brought three significant assets unrelated to its formal purpose:

- i) "Lecturers are not trained as teachers", adding that this is especially true of primary education;
- ii) The Faculty was "reaching out to the community" for the first time;
- iii) TESSA has brought Egerton academics into interaction with the global community.

In answer to the question of whether TESSA was a marginal add-on activity or an embedded entity, the Dean suggested it was "In the middle" – in the sense that it had not yet penetrated some units such as the Department of Agricultural Education and Extension. However, from a faculty perspective, it had infused research into teaching and those who had embraced TESSA had "flourished". For others, however, it was "business as usual".

In the In-service B.Ed Primary programme, TESSA materials were being used in the Subject Methods courses in English, Health and Physical Education, Kiswahili, Mathematics, Science and Agriculture, and Social Studies. All TESSA modules were being used in the Learning Resource Project. In the ITE B.Ed (Science/ Arts) programme, the TESSA Life Skills module was being used in Health and Physical Education. Student enrolment across all of these courses stood at 6320 (see Annexure B). Students were provided access to TESSA through CDs and hard copy. Most teachers and teacher educators "are more comfortable with the print form" (Keraro, 2011: 6), and there was accordingly limited use of the website. Use of hard copy places limitations on opportunity for adaptation of learning materials, an issue discussed presently.

Discussion on the perspectives and experiences of staff and graduate students is subsumed under the relevant evaluation questions in sections 4.2 and 4.3 below.

With respect to the other arm of the Egerton strategy, introducing TESSA to the broader education community, there was clear evidence of impact. A teacher at St Peters School followed a classroom demonstration of locally made models used in his classroom with an account of his experience of using the TESSA approach, summed up in the memorable words: "The advantage of TESSA is that it has entered me." Documents at Egerton University Primary School (introduced to TESSA in 2011) provided evidence of the systematic process the school had followed in inducting teachers into the materials and methodology, analyzing the resources in relation to the curriculum, and monitoring results. The school's analysis highlights the following benefits:

- Learning changed from passive to active
- Learners more inquisitive in the learning process
- Opportunities to explore the local environment
- Teachers found TESSA style more engaging
- Use of local materials enriches learning
- Discipline has improved as pupils engage in group work
- Marked improvement academic performance.

The school's *Action Plan 2012* (prominent on the Head Teacher's notice board) includes: "Child-friendly school and use of TESSA materials."

The programme of visits and interviews at Egerton yielded several examples of informal networks functioning in ways that had extended TESSA reach into new schools. There was also evidence of ministry officials promoting TESSA use. In particular, the concept of 'mind' mapping together with improvisation in the use of local materials had led to what teachers reported as a new insight: students can generate solutions on their own. Evaluation insights with respect to TESSA impact in schools are supported by other research findings (see Keraro, 2011; Ngugi, 2012).

Particular features of TESSA implementation at Egerton

Three notable aspects of TESSA implementation at Egerton are worthy of mention.

First, as noted above, primary schooling in Kenya is strongly driven by the system of examination. Schools are ranked on their KCPE results. "Emphasis on exams impacts negatively on TESSA use" (Keraro, 2011: 9), and ministry officials were initially skeptical of TESSA. Teachers had been advised to "stick to the curriculum" (ibid:10). However, at least in the Egerton environment, the reservations of ministry officials appear to have been overcome. This might be partly attributable to the fact that, in terms of *content*, there is consistency between TESSA material and the national curriculum. While one detailed, formalized indication of such alignment across the core curriculum can be found in the minutes of the Egerton University Primary School Staff meeting of 20-9-2011, it is just as important to remember that TESSA is about much more than content. In commenting on the relationship between TESSA and the 'Orange Book' in which KIE-approved textbooks are listed, a local official observed that: "Textbooks provide content. TESSA is about how one teaches content, it's about *methods*".

At a strictly rational level, there is thus justification for arguing that there is no inherent conflict between TESSA and the national curriculum and the system of examination. Nonetheless, it is the perceptions of teachers and officials that count. In the Egerton environment, perceptions appear to have shifted from reservations about TESSA to recognition of the positive role the project can play in supporting national policy. Such perceptions will doubtless have been cemented by one of the 'TESSA schools', St Peters School, having 'come first' in the regional KCPE.

Second, in common with several other network maps, the Coordinator is at the hub of all TESSA-related institutional networks. With the Coordinator having been in post since 2005, however, Egerton, has the longest-serving Coordinator of all. It is inevitable that the Egerton community sees the Coordinator as more than just the face of the project: Professor Keraro is seen as the project itself. The fact that he can report having benefited immensely from TESSA (Keraro, 2011) has much to do with the organic synergy that exists between the nature of the project and

his own university role as Acting Director of the College of Open and Distance Learning when Egerton joined TESSA, and as coordinator of “Instructional Materials Development” in the same college, a post he holds to this day.

Third, and arguably most importantly, the case of Egerton demonstrates how project flexibility can be translated into creative and contextually appropriate strategies that in themselves support and extend project impact. As a project, TESSA is aimed much more directly at teacher education than at schools and schoolteachers. Yet in the Kenyan policy environment, progress in the former is inseparable from progress in the latter. As the Dean remarked: “We need the blessing of all stakeholders. In Kenya, KIE is important. The Ministry is important.” The two-pronged project approach adopted at Egerton has been largely successful in embedding TESSA in both, and in mutually reinforcing ways. The fact that there is little evidence of TESSA being formally inscribed into Egerton curriculum policy may be better explained with reference to the university as a very particular form of organization rather than to actual use of the materials in the curriculum as it is practised. As seen above, TESSA materials are playing a key role in the teaching of subject methodologies.

3.2.2 UNIVERSITY OF FORT HARE (SOUTH AFRICA)

The National Context

The education system in South Africa has been characterized by a wide range of reform initiatives over the last one and a half decades. These reform initiatives have sought to address challenges relating to access, redress, equity and quality. Teacher education and development has been at the core of the reform agenda, with specific focus on increasing the quality of teaching and learning in schools. Indeed, as it has been rightly observed, review of curricular and pedagogic practices is at the core of South Africa’s education system (Sotuku, 2011: 2). However, there are several factors that influence perceptions of teacher educators and teachers with respect to the legitimacy of pedagogic practices.

Until 2011, teacher education and development in South Africa was influenced by two policy thrusts: the Outcomes Based Education (OBE) system and the Norms and Standards for Teacher Educators (NSE) of 2000. While the OBE system introduced a learner-centered approach to teaching and learning, the NSE prescribed the teacher roles and competencies most of which have been found to be difficult to realize in any one single teacher. While still promoting learner centredness, the recently revised policy on teacher education (SA Government 2011) seeks to promote teacher development through specified knowledge structures built into programme design.¹² Notwithstanding the accompanying political debate that has confused many teachers and teacher educators, TESSA project aims are in synergy with South Africa’s national aspirations for teacher development.

¹² These comprise Disciplinary, Pedagogical, Practical, Fundamental and Situational Learning.

Teacher education and TESSA at the University of Fort Hare

The University of Fort Hare (UFH), established in 1916, is located in the Eastern Cape, one of South Africa's most under-resourced provinces. In terms of governance, it is also widely recognized as the most dysfunctional of South Africa's nine provinces.

UFH has a total student population of 7000, of which 1260 (18%) are enrolled in the Faculty of Education. The Faculty comprises three schools, namely: School for Initial Teacher Education (SITE); School for In-Service Programmes (SISP) and the School for Postgraduate Studies (SPGS). Collectively, the Faculty is committed to offering flexible, relevant and innovative courses and programmes, conducting contextually responsive research, and upholding the values of inclusivity and diversity while maintaining close linkage with both rural and urban communities within the province¹³. Accordingly, the Faculty offers Certificate, Diploma and Degree teacher education programmes at both undergraduate and postgraduate levels that cater for the foundation, intermediate and senior phases of the education system. Specific programmes offered include: Advanced Certificate in Education; Postgraduate Certificate in Education; Postgraduate Diploma in Education; Postgraduate Diploma in Higher Education and Training; Postgraduate Diploma in Educational Leadership, Management and Development; Bachelor of Education; Bachelor of Education (Honours); Master of Education; and PhD.

UFH is a founder member of the TESSA project, having been involved since project inception in 2005. According to the current Coordinator at UFH, the main factor that motivated involvement in TESSA was a realization that the project offered great potential for not only designing, developing and delivering new forms of teacher education and development materials, but also harnessing a variety of ICT platforms for enhancing programme delivery and teacher support. At UFH, TESSA evolved in three phases. Phase one comprised project conceptualization, materials development, and launching of their use. This phase, which lasted till 2009, was managed by the first TESSA Project Director at UFH. Phase two, which began in 2010 and is ongoing, comprised monitoring and evaluation of the use of TESSA materials at UFH and in schools. This phase is managed under the current Coordinator, Dr Namhla Sotuku, who was appointed for the task by Faculty Management in 2010. Phase three, which formally commenced in late 2010 and was introduced to a large group of teachers through a TESSA Information Sharing Workshop held in March 2011, is focused on embedding TESSA. Teacher educators at UFH were introduced to TESSA materials through sensitization and awareness workshops. There was no Faculty policy prescription on the selection and use of materials. Instead, teacher educators were at liberty to use or not to use TESSA materials, and to choose *which* materials to use, as well as *when* and *how* to use them.

Strategy for embedding TESSA

UFH devised a four-fold strategy for embedding TESSA. This comprised: the sensitization and information sharing workshop strategy; the multi-pronged institutional dissemination strategy; the structured research and development strategy; and the external stakeholder liaison strategy. The sensitization and information sharing workshops initially targeted teacher educators within the Faculty of Education, but later spread to others including pre-service and

¹³ See *Faculty Mission* as stated at <http://www.ufh.ac.za/faculties/edu/index.html> (accessed 15 August 2012)

in-service teachers. The goal was to introduce faculty and teacher-learners to TESSA materials in a way that encouraged them to see TESSA as helping solve problems, and not as an 'add on' component or as 'extra' work. This seems to have been a very successful strategy, as echoed in the words of one teacher educator interviewed at UFH:

We were introduced to TESSA content and materials through a workshop. I looked at it [TESSA material] and found it very appealing, especially Maths. When I go back 4-6years, most of my work was with teachers in very rural and impoverished context. Eastern Cape is very expansive and schools have very little: no running water, no electricity. TESSA was the first text materials that came from 'a high end' to 'a user-friendly'. I liked particularly the format/layout and consistency for outcomes. They are key resources especially on how to run a big class and how to do assessment. They are very appealing! For example, how do we learn Maths through games, iconic stimuli, not just 3x.

The multi-pronged institutional dissemination strategy comprised: formal allocation of TESSA as a standing item on the agenda of all Faculty Board Meetings and School staff meetings to allow the Coordinator to present reports on activities, plans, resolutions and other developments; display of TESSA fliers/posters on strategic notice boards; and distribution of TESSA Newsletters and CDs. All of these dissemination tools were made available on a dedicated website for staff access.

This structured research and development strategy was designed to embed TESSA into the UFH's 4th year B.Ed (pre-service) Teaching Practice programme, and by extension entrench use of TESSA materials in selected schools within the Eastern Cape Province. Choice of the 4th year B.Ed Teaching Practice programme was strategic for three reasons. First, 4th year B.Ed pre-service students become part of a host school community as they are required to spend every Wednesday at a host school in addition to a 6-week teaching practice period in July/August. They are also required to write a mini-dissertation based on action research. Accordingly, they would be encouraged to use TESSA materials for teaching practice and also focus on TESSA activities for their action research. Second, a student on teaching practice works directly under a host teacher in the school, as a mentor. Through the pre-service student, the teacher mentor would become familiar with TESSA resources. Third, each teacher educator at UFH normally supervises two pre-service students on teaching practice. Accordingly, the educators would guide the pre-service student through a project in which TESSA materials would be used. The 4th year B.Ed in-service students were also to be encouraged to focus their mini-dissertation study on TESSA-related action research, and to use their experience to interest fellow teachers in TESSA and spread the use of the materials through various means including use of demonstration lessons¹⁴. Cumulatively, these processes were expected to promote embedding of TESSA at various levels and across institutional structures. Further, it was hoped that the process would result in the development of a 'professional learning team' that would comprise a group of teachers interested in trying out TESSA in their own classrooms.

The external stakeholder liaison strategy aimed mainly at securing awareness of and support for TESSA resources by external actors who were perceived as influential to the uptake of the resources by teachers and other stakeholders beyond UFH. Particularly targeted were

¹⁴ Information obtained from Report on the TESSA Research and Development Project Workshop on Strand 1 (School Level), held at the University of Fort Hare on 29th December 2010.

Education District Officers and Subject Advisors, as well as School Management Committees. The Faculty Dean was a key driver in all of these initiatives.

A number of challenges were encountered in executing these strategies. Three of the key challenges related to:

- i) *Change of guard in TESSA project co-ordination* – the first ‘coordinator’ who had been officially designated TESSA Project Director on a full-time basis left and was replaced by a new coordinator who was now officially designated “Project Coordinator” but without being relieved of her normal teaching responsibilities.
- ii) *Massive and unexpected turnover of TESSA-inducted teachers* – UFH had conducted a TESSA Information Sharing Workshop with over 90 unqualified Foundation Phase Teachers who had registered for the National Professional Diploma in Education (NPDE) and who were employed by the Eastern Cape Department of Education (DoE) as temporary teachers in schools. However, due to an unforeseen financial crisis within DoE, the services of most of these teachers were suspended, thereby constituting a severe setback to the embedding strategy.
- iii) *The DoE introduced a policy on prescribed books together with a “Work Book” for teachers.* This challenge is discussed further below.

How embedded is TESSA at UFH?

Embedding of TESSA, at overall project level, was generally understood as the integration of TESSA OER as a resource for teacher education within partner institutions. In trying to understand the form and scale of integration that had taken place, we sought evidence of curriculum materials incorporating TESSA as well as other forms of internal documentation on TESSA use at UFH. In particular, we endeavoured to establish not only whether TESSA resources are an integral part of programmes or additional materials, but also the extent to which use of TESSA was incorporated in institutional plans and policies.

The finding was that there is no institutional policy on integration or use of TESSA resources. The Faculty of Education does not prescribe any rules or guidelines that teacher educators are required to observe with regard to TESSA OER use. Instead, as already pointed out, the Faculty simply ensures awareness of and accessibility to TESSA resources on the part of teacher educators. The educators then decide whether or not to use TESSA resources, which of the resources to use, when and with which group of students registered for the various programmes. This independence of choice seems to be the main attraction that has led faculty staff to integrate TESSA resources in their teaching and learning activities. In line with this, some of the staff of UFH interviewed had this to say:

We use it [TESSA resources] on ad hoc basis. I use it when necessary. There is no institutional policy for its use. I use it because I like it. Some staff do not use TESSA resources at all.

(Teacher educator, UFH)

At UFH, when TESSA was introduced, Lecturers had to choose whether to use TESSA OER or not. It was not compulsory.

(TESSA Coordinator, UFH)

TESSA does not interfere with the curriculum; it enriches how one delivers the curriculum. It does not influence any policy. It would only do so if viewed as an additional component rather than integrating it.

(Dean, Faculty of Education, UFH)

TESSA integration at UFH has taken three forms: TESSA OER as instructional resource; as an examination resource; and as community extension workshop resource. As an instructional resource, TESSA OER are used by teacher educators as well as in-service and pre-service students for various teaching and learning activities including individual assignments and/or group work within lecture halls and classrooms. A mathematics educator, for example, had uploaded specific aspects of TESSA OER on the university intranet and given assignments to students who were required to access them. There was also evidence of TESSA activities being used in final examinations, for instance in Drama Education for pre-service students. As a community extension workshop resource, TESSA OER were being used in various Teacher Professional Development Workshops through synergies that UFH has built with other actors and initiatives such as: the Bilingual B.Ed programme (BEEP) supported by the European Union; the Community Literacy and Numeracy Group (CLING) initiative; and the Early Childhood Development Forum (ECDF), among others. The formation of these networks is clearly indicated in the network map provided by the TESSA Coordinator at UFH.

The pattern of TESSA use at UFH, as evident from tables that were generated depicting use of TESSA in UFH courses, shows a relatively high scale of integration. Specifically, a total of 23 courses (involving a total of 2,305 students) have integrated TESSA OER modules ranging from Literacy, Life skills, Numeracy, Natural Sciences, Guidance on Working with Teachers; Curriculum Mapping; and Key Resource. The programmes for which these TESSA modules have been integrated include both pre-service and in-service, and comprise: NPDE; B.Ed (in-service); B.Ed (pre-service); and PGCE. The main use of TESSA materials was for pedagogy (either general or subject-specific in maths, languages, technology education, life skills and natural sciences), with less usage on subject content areas in maths and technology education.

The main modes of access to TESSA OER were: the UFH intranet (62%); print and CD (23%); and online (15%). However, it was reported that at school level within the province, access to TESSA resources was almost exclusively print and CD. One teacher educator at UFH pointed to the key challenges related to inadequacies in technical capacity in ICT among teacher educators and lack of ICT equipment and connectivity in schools. Specifically, she remarked:

Yes, I find TESSA OER very relevant for early years, for foundation phase rather than higher grades of primary education in South Africa. But I get concerned about access, especially emphasis on CD rom and online modes of access. This emphasis implies that they give resources to those who are already privileged. Uploading these resources by educators is also assumed, but technical aspects come in. One has to be trained on how to access by downloading. Navigation of the website is good only if you already have ICT skills and have no fear of technology.

The other challenge experienced by UFH in embedding and extending TESSA use, especially to teachers in classrooms at school level, relates to the perceived conflict between teachers' excitement and enthusiasm about possibilities presented by TESSA OER and the Department of Education's policy on "recommended books" and the recently introduced "Work Book" which tend to constrain the teacher's independence, creativity and flexibility in the choice of teaching and learning resources, especially OER. The sentiments expressed by teacher educators and TESSA Coordinators both from UFH and UNISA was that the conflict (real or perceived) between the curriculum that teachers have to implement (including recommended books) and skills of creativity in use of resources as taught by universities, makes use of OER to be viewed by teachers as "extra" activity adding to workload. This is because, as the UFH Coordinator remarked:

In South Africa, teachers have a *Work Book* which was introduced after teachers were found not to be doing anything substantive in schools. The Work Book specifies what teachers should do from Monday to Friday, and the whole year. So the teachers have to look at the curriculum, look at TESSA materials and show how TESSA materials fit into the workbook. The Work Book prescribes to teachers how they should teach and what activities should be undertaken! This kills creativity.

A further challenge to embedding TESSA use beyond UFH was attributed to the initial resistance to TESSA materials by Subject Advisors from the Department of Education (DoE) on grounds that the materials did not have “learning outcomes” as articulated in South Africa’s OBE system.

Particular features of TESSA implementation at UFH

From the foregoing descriptions and discussions, there are three notable features of TESSA implementation at the University of Fort Hare.

First, the acceptance and uptake of TESSA OER by teacher educators at UFH was largely influenced by the way TESSA was *packaged* and *presented* to them:

- i) as a resource and possible solution to the teaching and learning challenges that they and their learners encounter;
- ii) as a resource whose acceptance, adaptation and use was entirely dependent on individual lecturers, and therefore whose introduction was in no way infringing on the lecturer’s traditional autonomy in the choice and use of learning and teaching resources; and
- iii) as a resource whose introduction was not aimed at changing curricula or the lecturer’s perspectives on teaching and learning, but one that was to enrich curriculum delivery. This does not mean that UFH was opposed to any perceptual changes among teacher educators and teachers but rather, took a cautious approach of letting the changes occur naturally as individuals interacted with TESSA materials. In fact, one teacher educator remarked that:

I don’t think TESSA has had a profound change or influence on the way I work. That is why I enjoy it. It was not a new approach. But with regard to my students, I think it is almost revolutionary. No matter what we say about OBE, our teachers are very stereotyped; teach from textbook and very much chalk-based. But to them, TESSA has given legitimacy to maths, they now see it as a real subject, rather than a textbook-driven subject.

We leave the reader to judge how such fundamental change could occur among students taught by the same lecturer, without any change first having occurred in the lecturer!

Second, UFH’s success in embedding TESSA use beyond the Faculty of Education, and ensuring its relevance and sustainability, lies in a carefully crafted strategy of building synergy with on-going and incoming projects, not only within the university, but also in the wider Eastern Cape Province and the larger South Africa. Indeed, TESSA itself was an offshoot of the DEEP¹⁵ project in which UFH and the Open University (UK) had participated. Subsequent to TESSA launch and during the period of implementation, UFH has, as the network map developed by the TESSA Coordinator shows, established many strategic linkages with other projects and initiatives as

¹⁵ See <http://www.dfid.gov.uk/rd4/caseStudies.asp?ArticleID=116>

explained earlier. It is through such projects and initiatives, many of them government endorsed or supported, that TESSA has attracted the attention and support of the DoE, even if on a small scale.

Third, even though lack of specific institutional policies for embedding TESSA OER at institutional level did not (and does not seem to) impact negatively on TESSA uptake among teacher educators, this case study does show that variance between national policy on teaching and learning resources and project aims that seek to promote OER as 'other' resources impede their up-take. Accordingly, in the South African context, it appears that building synergy with, or influencing policy of the Department of Education, would be a necessary objective of future TESSA initiatives.

3.2.3 UNIVERSITY OF EDUCATION, WINNEBA (UEW), GHANA

The National Context

Primary enrolment in Ghana increased nationally from 69% in 2002 to 76% in 2008 but the percentage of qualified teachers remained a lowly 51%.¹⁶ The profile of 'qualified' teachers is due in part to the minimum qualification for teaching at the primary level having been raised from 'Certificate: A' to a Diploma in Education in 2005, with the erstwhile Teacher Training Colleges being upgraded to diploma awarding Colleges of Education.¹⁷ The combined annual output of Ghana's 38 Colleges of Education is 9,000 in the face of the country's 33,000 teacher vacancies and the need to upgrade existing 'Certificate: A' teachers (GNA, 2010).

The Ministry of Education's 'Education Strategic Plan 2003-2015' (ESP) would appear to offer much synergy with TESSA, as the following points suggest:

- "Few students in primary schools acquire necessary knowledge and skills as identified in the current curriculum."
- "Teachers require targeted pedagogical training."
- "Science is poorly served in schools."
- "All teachers to have access to teaching support materials by 2008." (Ministry of Education, 2003).

Ghana launched its first official teacher education policy in 2000 (Akyeampong, Furlong and Lewin, 2000). An unusual feature of this policy is that Colleges of Education are accountable to the University of Cape Coast (UCC), established in 1961, with "the mandate 'to serve the needs of the whole country'" (Abreh, 2001: 2).¹⁸ As this mandate became increasingly difficult to fulfil,

¹⁶ UNESCO Institute for Statistics, 2007-2008.

¹⁷ <http://www.ghana.gov.gh/index.php/governance/ministries/331-ministry-of-education>

¹⁸ Colleges of Education are accredited by the Ministry's National Accreditation Board, and certified by UCC. See http://www.nab.gov.gh/index.php?option=com_content&view=category&layout=blog&id=64&Itemid=192&limitstart=10 (accessed 14 August 2012)

the University College of Education, linked to UCC, was formed out of seven diploma-awarding colleges of education in 1992. In 2004 this college was upgraded to the status of a full university: the University of Education, Winneba (UEW). UCC and UEW are thus the only two of Ghana's six national public universities¹⁹ offering teacher education. Both are TESSA partners, but it is UEW that is the subject of the present case study.

Teacher Education and TESSA at UEW

An unusual, if not unique, feature of UEW as a publicly funded university is that it is a dedicated teacher education institution. All its students are enrolled on a range of teacher education courses ranging from undergraduate diploma to PhD level.

UEW is also the youngest but fastest growing tertiary institution in Ghana. It has three sites for campus-based learning, 23 study centres for distance programmes, and a fourth campus is being developed in Central Region (UEW, 2011: iv). Nine faculties offer 11 undergraduate diploma courses and 26 undergraduate degree programmes. In 2008 UEW had 1400 members of staff and approximately 18000 students, around half of whom were distance education students. By 2011 student enrolment had increased to 50012, with "a dramatic increase in the number of our Distance Learning students" (UEW, 2011: iv).

Compared to Egerton and UFH, UEW is a relative newcomer to the TESSA consortium. "TESSA was introduced to the UEW in 2007 after ten lecturers from the various departments were engaged to test and answer questions related to the development of the TESSA portal" (Essuman and Otami, 2011: 2). Dr Sally Essuman succeeded Dr Kwame as TESSA Coordinator in 2010.

Strategy for embedding TESSA

At institutional level, a committee of senior staff was constituted in 2009 to promote use of TESSA across all faculties.

In practice, however, the institutional committee appears to have a largely symbolic function. "There is support from management who want TESSA there, but we have not achieved that yet." Organizational barriers mean, in the words of the Coordinator, "You can't just poke your nose in.... we struggle to get into other departments."

Coordinators thus made the most of opportunities as these presented themselves, doing what was pragmatically possible to promote TESSA. The project was highlighted in the regular seminar series and there was radio sensitization (some in collaboration with the TESSA partner in Nigeria). A 236-page TESSA-infused book on pedagogy was published.²⁰ TESSA was introduced to the broader education community at the end 2010. An agreement with the Municipal Director of Education in Winneba resulted in 60 in-service teachers and two circuit Supervisors participating in demonstration training in use of TESSA materials (TESSA

¹⁹ http://en.wikipedia.org/wiki/List_of_universities_in_Ghana (accessed 23 August 2012).

²⁰ Mensah, S.K.E. and Attah-Brison, G.K. *General Methods, Techniques and Skills of Teaching*. I-Media Advertising Ltd, Ghana.

newsletter, April 2011). Since then, UEW has continued working with this group of teachers and monitoring progress.

How embedded is TESSA at UEW?

Within UEW, Coordinators have achieved considerable success in making the most of opportunities for embedding TESSA. Annexure B shows that TESSA materials are being used in five units:

1. Distance Education

The programmes under Distance Education are the Diploma in Basic Education and Post-Diploma (B.Ed. by Distance) in Basic Education. Courses with links to TESSA resources are:

- | | |
|--|----------------|
| • Communication skills | Literacy |
| • English for the Basic School Teacher I & II | Literacy |
| • Mathematics for the Basic School Teacher 1 & II | Numeracy |
| • Environmental Studies for the Basic School Teacher | Science |
| • Life processes | Science |
| • Energy & Motion | Science |
| • Management in Living | Life Skills |
| • Socio-Economic Development in Ghana | Social Studies |
| • Population and Development in Ghana | Social Studies |

2. Science Education

Methodology lecturers in Biology, Chemistry, Physics and Integrated Science use TESSA materials.

3. Early Childhood Care and Development

All lecturers in this department are familiar with TESSA and have found the materials and methods particularly relevant to this phase of schooling. According to the Head of Department, there is unity of purpose amongst the lecturers and TESSA is integrated into a coherent programme design.

4. Basic Education Department

Courses under this department lead to a Bachelors degree in Basic Education. First-year students must complete an 'Introduction to TESSA Resource Material' credit-bearing course.

5. Centre for Teacher Development & Action Research (CETDAR)

CETDAR's training workshops for teacher-mentors sessions cover generic and subject-specific topics for teacher-mentors. TESSA has a fit-for-purpose role in topics covering the philosophy of teaching, teaching techniques and skills including active learning concepts/strategies, and reflective teaching.

Thus far, these courses have enabled a total student enrolment of 39005 to experience training in the use of TESSA materials. Of these, 5005 were in ITE programmes, and 34000 in in-service programmes. With these activities involving 23 UEW staff, TESSA practices have clearly gained a powerful foothold.

Although not formally listed amongst courses using TESSA, a coursework module 'Computer applications in education – OER' draws on TESSA for examples. As knowledge of this arose

coincidentally during the evaluation visit, it is quite possible that the influence of TESSA in a single-purpose institution such as UEW may extend beyond what can be readily captured in TESSA records.

Particular features of TESSA implementation at UEW

What accounts for TESSA acceptance and adoption?

It is notable that significant integration of TESSA has occurred largely as a result of the efforts of the two successive Coordinators and networking rather than through statutory university diktat. As with several other network maps, the Coordinator is at the hub of all networks which include:

- i) TESSA partners;
- ii) induction and embedding processes within institution, within faculty;
- iii) local levels of the education ministry;
- iv) induction and embedding in schools;
- v) conferences and research publication.

Positive advances in the adoption of TESSA occurred through *processes* rather than *products* in the form of university or faculty policies and guidelines. In Science Education, for example, the Coordinator pointed out that one of the four lecturers had been a member of the team that originally 'versioned' the TESSA science resources. He was also Head of the Physics education department. Both he and the Head of Basic Education were members of the 'TESSA committee' constituted by the Vice Chancellor. These two committee members introduced TESSA into their departments even though the committee itself has not yet generated a university position or guidelines on TESSA use. TESSA impact on the Early Childhood Care and Development (ECCD) programme was achieved through the previous TESSA Coordinator also being head of the ECCD.

It is worth noting that compared with conventional universities, it has not been any easier for an institution dedicated solely to teacher education to produce faculty policy or guidelines in relation to TESSA use. Nor has the experience of the Coordinator shown that it is any easier to promote TESSA across organizational lines of authority. UEW has:

- 2 Colleges (Agriculture Education and College of Technology Education);
- 9 Faculties each with specialized Departments;
- 2 Schools (Creative Arts Education and Graduate Studies);
- 1 Institute for Educational Development and Extension housing two centres.²¹

Because faculties have the relative autonomy that accompanies the competence to award degrees, innovations at UEW face the same challenges posed within any university, unity of purpose at UEW notwithstanding.

Like Egerton and UFH, UEW has extended awareness of TESSA into a broader network of schools and ministry officials. While budgetary constraints have limited this activity to the local Winneba region, the engagement with schools has had significant impact - if the two

²¹ Information taken from: University of Education, Winneba: *16th Congregation. Vice-Chancellor's Annual Report*, November 2011.

schoolteachers interviewed in the course of the evaluation are representative of those trained in use of TESSA.

Different strategies for using TESSA in contact and distance modes of delivery

With respect to ways in which TESSA materials have been used, UEW presents two distinctive strategies. In the ITE programmes where there is contact mode of delivery, the 'loosely structured' model is followed. However, it differs from the use of the same model at Egerton which involves lecturers making the selection of materials to be used. In UEW programmes such as the ECCD, students are introduced to materials on the TESSA website and it is they who select what is useful for their own practice teaching experiences. In this sense, the TESSA website and student judgement are key features of implementation. In the curricula of the ITE programmes that include only general methodology,²² TESSA plays the valuable role of inserting subject-specific methodology into general methodology.

By contrast with ITE programmes, in which TESSA adoption is more or less subject to the wishes and perhaps even whim of individual lecturers, TESSA use in the burgeoning in-service programmes offered by distance education calls for a standardized curriculum and procedures across study centres where the programme is offered. This is possible only if staff collaborate in a systematic way.

TESSA impact beyond UEW

The training of 300 tutors to support teachers at 18 student centres has greatly extended TESSA reach into 10 regions beyond the home campus. While it cannot be assumed that these tutors will use or promote TESSA beyond the UEW students they support, it is notable that as a result of having contacted UEW, the Volunteer Service Organisation (VSO) in Ghana is using TESSA resources.

Anxiety about the compatibility of TESSA with national policy (as at Egerton and UFH, above) is not a feature of staff perceptions at UEW. With respect to schools, a preoccupation with exam results was said to be limited to the private schools. With respect to the university, the Head of the ECCD programme observed: "With TESSA, we just went ahead and did it. We do the things, then make the policy." This approach certainly bore rich fruits in the case of new national policy which had attached two years of kindergarten training to Basic Education in a context in which there were no curriculum policies to support it. Nor had the ministry made provision for kindergarten training. However, by using TESSA, UEW was able to provide the necessary training *and* deliver a TESSA/OER-based policy to the ministry.

3.3 SIMILARITIES AND DIFFERENCES ACROSS THE THREE CASE STUDY INSTITUTIONS

As we have seen, the case study institutions (Egerton, UEW and UFH) are all major universities with large fully fledged faculties of education offering a full range of programmes. All have a strong presence in the regions in which they are located. TESSA has been used in several programmes in the three institutions, most particularly for the teaching of methodology/

²² Subject –specific methods are not included in the curriculum because of resource constraints.

subject methodology in both In-service and ITE programmes. There are further similarities - as well as significant differences - with regard to the contexts in which they function, their strategies for embedding TESSA, and their accomplishments.

However, discussion and consolidation of these aspects of the case studies is best deferred to section 4 in which the evaluation questions are addressed.

3.4 CASE STUDY OF A NON-NETWORK PARTNER: OLA COLLEGE OF EDUCATION, GHANA²³

Although a non-formal TESSA partner, OLA College of Education is included in this report as an example of how unplanned, organic TESSA 'take-up' has occurred. OLA is also a useful – albeit probably exemplary – instance of how TESSA implementation might unfold in the organizational setting of a college as opposed to the university.

Through its mandatory association with the UCC Institute of Education as the body responsible for assessment and certification, and possibly also because of its geographic proximity to UCC, OLA adopted TESSA in 2007. OLA became an accredited college on 1 October 2010.²⁴ UCC regards OLA as the “test college of TESSA use in the Central Region of Ghana” (Abreh, 2011: 4). As an institution, OLA has indeed embraced this role wholeheartedly. The report of the TESSA Committee (OLA, 2012) has on its cover the motto: “TESSA! Education at Heart”, and the report includes a Mission statement (“To advertise TESSA to other colleges i.e. the knowledge acquired, the importance and its benefits”), a Vision statement, and Objectives/Aims. Students are given a clear role: “To educate other colleague student teachers in neighbouring Colleges on the use of TESSA OER” (OLA, 2012: 3-4).

The ‘TESSA Club’ is central to the advocacy strategy. This club organizes a TESSA workshop for staff every semester. Despite membership of the club being voluntary for students, those who were interviewed were not aware of any of their peers who were *not* members. Nor did they have knowledge of ‘dropouts’.

With respect to formal classes, however, TESSA has a formal place in the curriculum. Fifty-five minutes of TESSA activity per week is timetabled into the curriculum of first and second year students. Induction into TESSA begins with ICT. Because “TESSA is a web-based tool” (in the words of the ICT tutor), students begin by acquiring competence in conducting targeted searches for information on the Internet. After this, students learn

how to access the various materials from the TESSA website and then various tutors in the respective subjects come in to help the students use the materials in their practice teaching. ... Tutors, who themselves use the materials in their teaching, guide the students to adapt and use the materials in their on-campus and off-campus teaching practices (Abreh, 2011: 4).

²³ OLA: Our Lady of Apostles

²⁴

http://www.nab.gov.gh/index.php?option=com_content&view=category&layout=blog&id=64&Itemid=192&limitstart=10 (accessed 26 August 2012)

Methodology across all subjects is thus rooted in the TESSA materials. According to the teacher-learners who were interviewed, this has led them to carry out systematic searches for other OER.

Like partner institutions, OLA has been conducting its own monitoring of TESSA effectiveness. The OLA report (2012) includes reports on TESSA implementation in the various subject departments. These reports are uniformly favourable, with the interesting feature that students had shown the ability to adapt the materials. Tutors who were interviewed discounted the notion that the content of TESSA materials might not be in alignment with national policy. It would be up to the teacher to manage disjunctions, but in fact there were none: "TESSA is in tune with the national curriculum".

4 TESSA IMPACT

4.1 USE OF TESSA

This section addresses the first evaluation question: “How are TESSA OER being used in each partner institution and what is the relative success of different models of use?”

Use of TESSA materials in the partner institutions is outlined in Table 3 below. As a generalized summary of individual institutional returns (see Annexure B), the table serves as a basis for discussion on models of use. Consideration is then given to the extent to which such usage has moved from practice into formal curriculum policy or guidelines.

4.1.1 USE OF TESSA MATERIALS IN PARTNER INSTITUTIONS

As with any table of statistics attempting to condense practices onto a single sheet, Table 3 is best viewed against a background of cautionary notes. First, in the case of some institutions such as Nigeria’s NTI, use of TESSA is more varied than the simplified generalization offered in the table. Readers wishing for a more nuanced picture of practices within a single institution are referred to Annexure B. Second, the ‘Student enrolments’ column captures the total number of students enrolled in modules within which TESSA is used. In several cases, the same student may have been enrolled across a number of the modules that are listed under a single partner institution. There is thus a difference between numbers enrolled, and the total number of students who have been reached by the project. It is not possible to provide a number for the latter. Student numbers are also difficult to capture at one moment in time as they fluctuate, especially in distance programmes. Moreover, not all courses are of equal credit point weighting and duration, and the table below includes short courses as well as programmes extending over several years. In the case of the NTI, figures from 2010 and onwards have been included.

Third, this table reflects returns from all institutions bar one. As the Coordinator at UCC did not respond to requests for information, in respect of this HEI the table is able to reflect no more than the fact that the materials were used in three programmes at UCC. ²⁵

²⁵ as reported in the UCC case study, Abreh (2011).

Table 3: The Big Picture: Use of TESSA materials in courses across participating institutions (July 2012)

Institution	Course	Main focus of module	Type of course	# Students enrolled	Main mode of access to materials	Main mode of Assessment
Egerton University	• B.Ed Primary	Methods	INSET	3820	Print/ CD	Assignments
	• B.Ed Arts/Science	Methods	ITE	2500	Print/ CD	Assignments
Kigali Institute of Education	• B.Ed Primary Teaching & Teacher Education	Foundations of Education	ITE	200	Print	
		Methods	ITE	643	Print	
Kyambogo University	• Diploma in Education Primary External (DEPE)	Methods	INSET	2173	Print	Assignments & Practicals
	• PTC Pre-service	Content/Methods	ITE	1200	Print	Assignments & Practicals
Makerere University	• B.Ed (In-service)	Content/Methods	INSET	722	Print/CD	Coursework & exams
National Training Institute (Nigeria)	• Nigeria Certificate in Education	Content/Methods	ITE/INSET	11873	Course book	
	• Teaching Practice	Content/Methods	INSET	26126	CD/website	Teaching Tests
	• Various CPD	Content/Methods	INSET	158020	Manuals	
Open University of Sudan	• B.Ed	Methods	INSET	12320	CD/Print/ Web/Radio/ TV	Teaching
Open University of Tanzania	• Diploma in Primary Teacher Education (DEPE)	Pedagogy/ Methods	INSET	8150	Print/ CD/ Web	Tests, exam, portfolio, TP supervision
University of the Cape Coast	• Diploma in Basic Education, B.Ed, MEd					
University of Fort Hare	• NPDE	Methods	INSET	250	Print/ CD	Lecturers' discretion
	• B.Ed, PGCE	Methods	ITE	2055	Print/CD/ Intranet	
University of Education, Winneba	• Distance Education	Content/Methods	INSET	34000	Print	Tests/ exam
	• Science, ECCD, Basic Education	Content/ Methods	ITE	5005	Print/ Web	Varied
University of Pretoria	• B.Ed (ECD to senior phases), PGCE	Planning for practice teaching	ITE	1380	TESSA website	Students' reflections
University of South Africa	• B.Ed (ECD to senior phases)	Content/ Methods	ITE	24830	Print/ CD/ Video conference	Teaching practice & workbook
University of Zambia	Programmes for teachers and teacher educators	Pedagogy/ Methods	INSET	235	Web and CD	Continuous assessment & exam

4.1.2 FEATURES OF USE OF TESSA MATERIALS AND METHODOLOGY

Table 3 has three dominant features.

(a) Extremely large student numbers

Notwithstanding the above caveat with respect to how we understand the statistics on student enrollments, it is clear that extremely large numbers of students have experienced TESSA materials and the activity-based approach to teaching they embody. Even if the massive scale of the NTI's use and adaptation of TESSA materials is excluded, the number of students exposed to TESSA is impressive in all HEIs relative to the type of programme on which students are enrolled. Even in cases of the more labour-intensive ITE programmes offered through contact teaching, no institution is short on student enrolment in courses using TESSA materials.

An indeterminate number of students in agencies other than the partner HEIs have also experienced TESSA (e.g. the VSO in Ghana, and others listed in section 4.4). Of those, we have statistics only from OLA College where TESSA has reached 1500 teacher-learners (1200 Certificate 'A' Top-up students; and 900 untrained teachers).

(b) TESSA 'take up' in diverse contexts

The second noteworthy feature of Table 3 is the sheer diversity of contexts in which TESSA has taken hold. TESSA has also been embraced across:

- Different national education policy regimes, from strongly regulated (e.g. Kenya) to less regulated (e.g. Ghana) to those that have been in flux and where there are uncertainties about the actual intensity of regulation (e.g. South Africa)
- Universities serving different language/cultural/ socio-economic student populations
- ITE and in-service programmes
- Contact teaching and distance programmes
- Short courses in CPD as well as in the mainstream Certificate, Diploma, B.Ed, PGCE programmes
- Students preparing for teaching in all phases of schooling ranging from ECD to senior and FET
- All content curriculum areas, mainly for purposes of subject methods, but also for the teaching of content ²⁶
- New programmes initiated by institutions (e.g. the B.Ed Primary at Egerton) to those constituted in response to government imperatives (e.g. OUS was mandated to 'upgrade' certificated teachers to B.Ed, by distance).

(c) Fitness for purpose

Table 3 affirms the 'fitness for purpose' of TESSA aims and strategy. Despite the diverse applications of TESSA materials, the majority of programmes in which the materials are used are the mainstream programmes for teacher supply, most particularly in the form of the Diploma in Education and Bachelor of Education. Allied to this is the fact that nine of the partner

²⁶ At UFH it has also been used in Educational Studies and Professional Studies.

HEIs are using TESSA materials across all five curriculum areas for which materials are available. Apart from Makerere, which does not offer Life Skills in its B.Ed, the only exceptions to full use of all sets of materials are the large distance education programmes using a selection of the sets of materials. OUS uses Life Skills, Numeracy and Science; UEW's distance programme includes Literacy, Numeracy, Science and Social Science; and UNISA has integrated the Arts component of Social Studies, Life Skills, Literacy and Science into its B.Ed.

4.1.3 WHAT IS THE RELATIVE SUCCESS OF THE VARIOUS MODELS OF TESSA USE?

The above three features of TESSA use are manifest testimony to the fact that diverse HEIs in diverse contexts have all affirmed the need for learning materials in the five core curriculum areas covered in the programmes that are essential for teacher provision. At the same time, some HEIs have used the materials in other creative ways. For example, the materials have been used for purposes ranging from Recognition of Prior Learning (RPL) processes at UFH to inclusion in masters' programmes at UCC (see Table 3 above) and UEW (see 3.2.3).

How successfully have the models of use met the needs for which the materials were recruited? We address this question by considering, first, how institutions have used the materials in relation to the nature of their own programmes. Second, we consider 'success' in relation to the accepted features of good education practice.

4.1.3.1 HEIS' USE OF TESSA IN RELATION TO THE NATURE OF THEIR OWN PROGRAMMES

According to the document *Working with Teachers: A Handbook for Teacher Educators* (TESSA, n.d. :13), the two different models of use are "Highly Structured" and "Loosely Structured".²⁷ In the former, all students carry out a selection of TESSA activities which are likely to appear in a manual or handbook; in the latter, a lecturer selects appropriate TESSA activities for her own course.

The most reasonable conclusion with respect to the success of the different options is that neither is more nor less successful than the other. *Both models have been successful in relation to the specificity of different contexts, and to the purpose for which the materials were recruited.*

At first glance this might seem to be an over-generalized assertion. On the contrary, it is a firm conclusion that is informed by the triangulation of data from: (a) institutional case studies compiled by coordinators and the body of research generated within the project, (b) evaluation interviews at the three case study sites (which included focus group interviews with all coordinators), and (c) responses to questionnaires. The simple fact is that Coordinators and their fellow academics used the materials in ways that were suited to their needs, and that 'worked' for them. By and large, the "highly" structured approach has been successful in the distance education programmes. These have involved staff collaboration in integrating the materials into existing curricula in ways that maintain and enhance programme design. Thus, for example, TESSA materials are recontextualised into the institution's own printed learning materials or in manuals and handbooks. By contrast, the "loosely" structured approach is

²⁷ See also section 1.1 (c) above.

effective in the flexible contact teaching situations in which adaptation to the immediate context is more easily achieved. The NTI's Nigeria Certificate in Education is a good example. The methodology courses are taught in a "highly" structured approach built into a "TESSA integrated Course book" (see Annexure B). Within the same programme, the Teaching Practice Module relies on all TESSA modules as well as the *TESSA Handbook for Teacher Educators*. These resources are used in a "loosely" structured manner in the supervision of practical classroom teaching. In this instance, both "loosely" and "highly" structured models have been successful within different components of the same programme.

Some HEIs have indeed refined the somewhat dichotomous categories of "loosely" and "highly" structured. In UEW's contact programmes and at OLA College, the former approach is used with the important difference that selection of materials is made not by academics, but by students (see 3.2.3 and 3.4). In these particular cases, the hub of the model of implementation is thus the website. Staff demonstrate what resources are available, but it is *students* who select and adapt the materials on the basis of their judgement in relation to pupils' needs and level of development in the contexts in which they practise. This is arguably the most meaningful and advanced form of professional experience students can possibly gain.

4.1.3.2 HEIS' USE OF TESSA IN RELATION TO FEATURES OF GOOD EDUCATION PRACTICE

As pointed out earlier, the conceptual TESSA model is itself rooted in a theoretical position that embodies an advanced form of professionalism (see 1.2.1(b)). One can readily connect TESSA with the model of personal and professional development that encourages activity-based, reflective teaching (often contrasted in the literature with the model of the teacher as 'technician' equipped to implement 'teacher proof curricula').

In two significant ways, the present evaluation shows that partner institutions have used TESSA in ways that reflect the integrity of the TESSA model of professional development.

(a) Use of TESSA materials in methodology courses

The expectation in Project design was that TESSA materials have most applicability to the Subject Methodology component of teacher education programmes (see TESSA, n.d.: 3). As is evident in Table 3 above, institutions' main use of TESSA materials – irrespective of whether in 'loosely' or 'highly' structured models - has indeed been in methodology courses. While some courses in which the materials have been used cover *general* teaching methodology (or pedagogy), many are linked with the content aspect of the materials in that they cover *subject methodology*. Since Shulman (1986, 1987), a persuasive body of literature has stressed the importance of 'pedagogical content knowledge' (PCK), which is really the concept of 'subject methodology' expressed in more theoretical form, bringing together:

- content (subject matter)
- pedagogy (instructional methods)
- learner characteristics.²⁸

²⁸ Shulman defines pedagogical content knowledge as "the capacity of a teacher to transform the content knowledge he/she possesses into forms that are pedagogically powerful and yet adaptive to the variations in ability and background presented by the students" (1987, p. 15).

The curriculum of a good ITE programme will include subject methodology (or PCK):

If beginning teachers are to be successful, they must wrestle simultaneously with issues of pedagogical content (or knowledge) as well as general pedagogy (or generic teaching principles)(Grossman, as cited in Ornstein, Thomas, & Lasley, 2000: 508).

As pointed out under 3.2.3, UEW is limited to teaching general methodology because it does not have the resources to offer subject methodologies. This limitation appears to be normative in many faculties of education in Africa. As at UEW, use of TESSA materials helps to insert subject-specific methodology (PCK) into general methodology.

Linked to the use of materials in methodology courses is the use of the TESSA *Handbook for Teacher Educators* in the Foundations of Education course at KIE. TESSA materials are also used in Educational Studies and Professional Studies at UFH. In such ways is the intersection between theory and practice made more explicit.

(b) Use of developmental forms of assessment

More appropriate coverage of general and subject methodology would count for little if assessment remained rooted in the traditional ‘exam’.²⁹ An important feature of assessment as depicted in Table 3 above is that the ‘exam’ is mentioned by only four institutions, and then only in combination with other forms of assessment such as coursework, continuous assessment or portfolio. All evidence suggests that assessment practices are becoming supportive of the activity-based teaching approach inherent in the TESSA materials. Of particular significance is the fact in several cases – such as the NTI, OUS, OUT, and UNISA - assessment is built into the Teaching Practice component. This takes assessment into the heart of what TESSA is all about.

4.1.4 INSTITUTIONALIZING TESSA

We have argued that partner institutions have used TESSA materials in ways that bring them into closer alignment with theoretical models of best practice. However, are these transitory practices likely to endure beyond project funding? To what extent have partner institutions been successful in institutionalizing TESSA?

Several factors make these difficult questions to answer. The basic difficulty is that it is not easy to penetrate the inner workings and policies of universities, and on site visits the evaluators formed a distinct impression of their gaze being directed to the broader school community rather than to the faculty itself. One good reason for this is that the strategy for embedding TESSA was very much one of Coordinators working with promising individual academics within their own faculties in tandem with sensitizing / testing the model with key stakeholders in schools and with ministry officials as opportunities arose. First gain a foothold by providing a model that can be written into institutional strategies and curricula. It is a strategy that makes sense, and it has borne fruit. Also, it is well known that policy-making can be a laborious process in universities. Lack of progress made by the institution-wide body to promote TESSA at UEW is case in point (see 3.2.3). Similarly, when asked if TESSA was a marginal, add-on activity or embedded feature at Egerton, the Dean’s response was a rather enigmatic: “It’s in the middle”.

²⁹ “The exam becomes the curriculum” is a popular expression that captures the effect of ‘the exam’.

Without a measure of institutionalization or formal curriculum specification, however, it is true of cases in which an *individual teacher educator* has chosen to use TESSA activities in her teaching or assessment strategies, the impact or effect could well become a victim of staff mobility and disappear with the lecturer.

Against that somewhat sombre background, it is noteworthy that much progress has been made in inscribing TESSA practices into programmes in ways that will secure sustainability much more surely than policy edict. At OLA, the integration of TESSA has been collective, not individual. But TESSA's security of tenure is undoubtedly most secure in the distance education programmes using TESSA materials. Here, processes of staff collaboration and agreement have resulted in the integration of TESSA materials into learning materials in ways that strengthen their substance while maintaining curriculum coherence. At OUT, for example, this process involved 21 staff members of the Institute for Continuing Education working on curriculum development, translation, integrating materials, and monitoring (Muganda, 2011). The uniqueness of TESSA at OUS is its "detailed integration into its education courses of a dedicated TESSA handbook, making it compulsory for all students and involving supervisors from the start" (Zahawi, 2011: 1). At Makerere, acceptance of the principle of activity-based materials for external programmes has influenced "how teaching is carried out in Makerere itself" (Aguiti 2011: 3).

In Nigeria, where TESSA has been integrated into several NTI initiatives:

The Federal Ministry of Education, State Ministries of Education, the Universal Basic Education Commission, State Universal Basic Education Boards, the National Commission for Colleges of Education, the Teachers Registration Council, the Nigeria Union of Teachers, the NTI Governing Council and staff have been very supportive.³⁰

The clearest instance of TESSA being embedded at institutional level is that of UNISA. The university website carries this statement:

Unisa's College of Education (CEDU) is committed to preparing efficient student teachers through their B Ed and PGCE programmes. One strategy adopted is to expose students to the Teacher Education in Sub Saharan Africa (TESSA) Open Educational Resources (OER), which will enhance their teaching skills. ³¹

The College itself has developed 'A Position Paper to Outline the Use of TESSA Open Educational Resources in the College Of Education'. While it would be inappropriate to reproduce this internal document in the present report and thus into the public domain, it can be stated that is indeed a comprehensive plan with action plans and a detailed budget.

Several institutions have thus invested much time and thought into integrating TESSA into their own learning materials. In distance programmes, these materials are assets that represent a

³⁰ Information Memo on *Teacher Education In Sub-Saharan Africa (TESSA)* presented at the Joint Consultative Committee On Education (JCCE) Reference Committee Meetings on Basic Education, Uyo, Akwa Ibom State, 17th to 21st May, 2010.

³¹ <http://www.unisa.ac.za/cedu/news/index.php/page/14/> (accessed 26 August 2012).

significant investment. In the case of UEW it was also these materials that helped reduce the time in which distance programmes could be introduced. Such efforts are not easily abandoned.

From this brief review of the 'hard' evidence we move to the more qualitative view of TESSA having become normative in the practices and identities of teacher educators.

4.2 TESSA INFLUENCE ON TEACHER EDUCATORS

Thus far, it has been established that in terms of scale there has been considerable 'take up' of TESSA materials. It has also been argued that actual use of the materials has by and large represented forms of practice that correspond with best professional practices as articulated in education theory.

Against that background we address the next research question: "What is the influence of TESSA on teacher educators (identity and practices) at partner institutions?" This issue is crucial to the TESSA strategy of improving the quality of teaching through more purposeful forms of teacher education.

4.2.1 UNDERSTANDING AND MEASURING 'IDENTITY' AND 'PRACTICES'

The middle of a report of this kind is not the best place to venture into methodology. However, the concepts of 'identity' and 'practice' are sufficiently complex as to require explanation in terms of how they are understood for purposes of measurement.

Teacher educators who had used TESSA were asked to complete a questionnaire with open- and close-ended questions (see Annexure A). The first two questionnaire items covered images of good practice at the level of both school teaching and teacher education. In each, respondents were asked to indicate their level of agreement with a series of statements. These statements reflected two broad positions aligned with typologies pioneered by Schön (1983), and further developed by others since. These typologies are:

- i) *Reflective practice*, being the capacity to reflect in action (while doing something) and on action (after you have done it). Teacher education programmes following this tradition encourage students to develop their capacity for making decisions in regard to teaching and learning in different contexts, with different resources, and with learners of differing abilities and interests.
- ii) *The approach often referred to as the 'scientific approach'* (Olson, 1992) based on 'technical rationality' is the more traditional model that equips teacher-learners with formulaic knowledge in the style of 'tips for teachers'. It is sometimes termed a "battery" model: training 'charges' the students who then 'discharge' when entering the world of practice. Teaching in this tradition is necessarily strongly teacher-centred.

Like most typologies, these are rather crudely dichotomous. However, they were useful for gaining purchase on how the teacher educators who had used TESSA defined their preferred modes of practice. If preferences were for the indicators of the reflective tradition, it would be reasonable to argue that teacher educators were not only inducting their students into use of

TESSA materials, but were doing so in ways that would create learning environments hospitable to TESSA.

In terms of questionnaire strategy, an attempt was made to blur the two dichotomies with the inclusion of a number of more ambiguous statements that could in fact apply to either pole of the dichotomies.

4.2.2 PROFILE OF RESPONDENTS

All partner institutions are represented in the 49 completed questionnaires that were returned. An additional 9 questionnaires were completed by academic staff at OLA but as our focus is on partner institutions these responses are covered only briefly in the final part of this section.

Table 4: Profile of respondents to Teacher Questionnaire (Partner institutions)

Age	← 30 = 0		31 - 40 = 7		41 - 50 = 18		over 51 = 24	
Gender	Males = 32				Females = 17			
Years of Teacher Education experience	← 1 = 0		3 - 4 = 5		5 - 6 = 3		→ 6 = 42	
Highest qualification	PhD 17	Masters 16	BA 3	B.Ed 3	BSc 3	Diploma 4	unclear 3	
School teaching experience	Yes = 45				No = 4			
Age Range taught	ECD = 0		Primary = 3		Junior Secondary = 18		Senior Secondary = 24	
Years of teaching in schools	1 - 5 = 10		6 - 10 = 16		11 - 20 = 11		20 + = 8	

The sample is thus comprised mainly of older staff (86% over 41 years of age), almost two thirds (65%) of who are male. In terms of professional profile, the sample is:

- well qualified, with over two-thirds (67%) holding higher degrees
- well experienced, with 86% having more than 6 years of experience in teacher education.

Together with the fact that respondents had used TESSA materials in all five subject areas,³² one has confidence that this sample provides a suitably authoritative basis for the purpose of evaluation. The fact that almost all (92%) also have experience of teaching in schools – albeit

³² but in too many permutations of courses to allow for a meaningful representation of the exact number for each subject area. Respondents listed the courses in which they had used TESSA materials, and the list ran to four foolscap pages.

little of it in primary education - lends further credibility to the sample. It also raises the interesting question, which cannot be pursued now, of whether teacher educators with classroom experience are those who are most readily attracted by the TESSA materials.

4.2.3 TEACHER EDUCATORS' IMAGES OF GOOD PRACTICE

4.2.3.1 IMAGES OF A GOOD SCHOOL TEACHER

Respondents were asked: *For each statement please use the numbers to indicate whether you think this is a characteristic of a good teacher.*

1 = *very much like a good teacher*

4 = *not at all like a good teacher (2 and 3 allow for positions that are less definite).*

Respondents' choices most clearly representative of the reflective approach appear in **green, boldface** print; and those more representative of the traditional 'scientific' method in *blue italics*. The more neutral statements that might, in certain circumstances, belong with either approach have been left unchanged in the default typeface.

Table 5: Respondents' image of a good school teacher (N = 49)

		1	2	3	4
1	Their main aim is on learners learning the facts	5	16	17	11
<i>2</i>	<i>The teacher never asks learners a question unless she knows its right answer</i>	<i>2</i>	<i>5</i>	<i>10</i>	<i>32</i>
3	They adapt their teaching methods to particular circumstances	40	8	-	1
<i>4</i>	<i>They stick to the lesson plan no matter what</i>	<i>2</i>	<i>8</i>	<i>14</i>	<i>25</i>
5	They share the lesson objectives with their learners	45	2	1	1
6	They are interested in their learners as individuals	47	1	1	-
<i>7</i>	<i>They do not deviate from the tried and tested methods of classroom teaching</i>	<i>10</i>	<i>14</i>	<i>13</i>	<i>12</i>
8	They train pupils to develop learning strategies	42	5	2	-
9	They like their learners to develop learning autonomy	45	4	-	-
10	They know that learners learn best by listening carefully to the teacher	12	14	14	11
11	They like their learners to work collaboratively on certain tasks	44	4	1	-
12	They like to guide and support learners' learning	45	4	-	-
<i>13</i>	<i>They know they won't need teaching aids or materials if they explain things well</i>	<i>-</i>	<i>4</i>	<i>6</i>	<i>39</i>
<i>14</i>	<i>They know that assessment is all about giving learners accurate marks or grades ...</i>	<i>2</i>	<i>4</i>	<i>11</i>	<i>32</i>
15	They encourage learners to reflect on their own progress	47	-	1	1

It is striking that the statements associated with *reflective* teaching (numbers 3, 5, 6, 8, 9, 11, 12 and 15) are those most strongly supported as being 'very much like a good teacher'. As boundaries can be slippery, there seemed little purpose in undertaking a statistical correlation of this association. In any event, it requires no more than a glance to see that almost a 'full house' of teacher educators opted for the indicators of the reflective teaching approach.

Conversely, the ‘*scientific*’ approach statements in blue typeface (2,4,7,13,14) attracted very little support as statements describing what was “very much like a good teacher.” In fact, if the more ambiguous statement 7 is excluded, there was almost no support for the ‘*scientific*’ approach.

4.2.3.2 FEATURES OF A GOOD TEACHER EDUCATION PROGRAMME

Section C of the Questionnaire listed 19 beliefs that might inform or underpin a teacher education programme. Respondents were asked to mark the five statements that, in their judgement, are the most important for a good teacher education programme.

The five most favoured statements are listed in Table 6.

Table 6: Teacher educators’ selection of belief statements on good teacher education

View/ belief statement	# Respondents
A good teacher education programme incorporates: the teacher’s purpose; the teacher as a person; the real world context in which teachers work; and the culture of teaching in that context.	38
Teacher professionalism is really about acceptance of the moral responsibility that is attached to the role of teachers today, and the ability to make minute-by-minute judgements in complex and uncertain situations.	33
Teachers know that learners at any level develop their own novel systems of knowing. Learners do this by constructing and reconstructing existing knowledge that is passed on to them.	30
Learner teachers should be taught how to organize scaffolding for their learners to enable them to extend their knowledge and try something they would otherwise not manage on their own.	26
In teacher education, attention to pedagogy is critical; <i>how</i> one teaches is part and parcel of <i>what</i> one teaches In the professional preparation of teachers, the medium is the message (Grossman, 2005).	25

Other choices were those broadly linked with the encouragement of collaborative professional development, formative assessment, and other principles that would facilitate a reflective model of teaching. By contrast, none of the following statements drew support from more than two respondents:

- Learner teachers are at the university to learn the theory (mainly the Philosophy, Psychology and Sociology of Education).
- Educational theories provide scientific knowledge that should be understood as rules for teacher practice.
- On-going professional development for teachers is best left to the experts responsible for offering formal in-service programmes.
- At the end of the day, the final examinations are the best measure of the readiness of learner teachers to take up their roles in the classroom.

There is thus a strong correlation between teacher educators' definitions of good teaching and the kind of teacher education programme that would prepare teacher-learners to fulfil that role.

On the basis of this evidence, there are grounds for concluding that teacher educators' images of preferred practices and, indeed, their identities, were broadly in harmony with the kinds of beliefs and practices one would readily associate with the TESSA model. Against this background, we analyze teacher educators' practices and identities as described in their own words.

4.2.4 TESSA – IN TEACHER EDUCATORS' OWN WORDS

The following analysis is based on responses to sections of the Questionnaire inviting open-ended responses to a number of questions. Conclusions are supported by quotes illustrative of the views on which they are based. As most responses were too lengthy to be quoted in full, many of the quotes below are extracts from single statements. When reading these quotes it should be borne in mind that some correspondents were not writing in their home language. In the case of the OUS, which submitted four returns, questionnaire responses were translations managed by a member of staff.³³

4.2.4.1 WERE TEACHER EDUCATORS' PRACTICES AND IDENTITIES INFLUENCED BY TESSA?

Perhaps the most important question in the Questionnaire was: *Has your experience of using TESSA materials possibly led to any changes in the way you think about and plan your teaching in general?*

It had.

The following quotes include key sentences selected from the comments of the 43 teacher educators (88%) who stated that their experience of using TESSA materials *had* led to changes in the way they think about and plan their teaching in general.

- “Definitely it did because the materials exposed me to new resources for use and the interactive methodology advocated has made me to reflect a lot on what learning as a process entails.”
- “Absolutely, using the TESSA philosophy.”
- “Greatly. There are many possibilities of sharing best practices in teachers' education especially through contact with Internet facilities that link the world to large pool of resources.”
- “A total change happened to me ... which is attributed to the using of TESSA materials.”
- “Through incorporating TESSA materials my school NTI staff school has been graded to a model staff school. A school that sets a standard for others to follow.”
- “No doubt it has because one has to think critically about what to teach, how, when and where.”
- “Yes definitely, I discovered that there are numerous ways to teach Art and Handwork.”

³³ Translator (English to Arabic): Kirya Nucor

Apart from three non-responses to the question, there was one negative response, the reason for which appears to stem from the view that the materials are unsuitable for senior classes: “No – There might have been at times good ideas that fed into your existing methodologies and curriculum content, but most of the time at a very basic and elementary level.”

4.2.4.2 WHY DID TESSA HAVE SUCH IMPACT?

Reasons for TESSA impact touched on above can be included in a consolidated listing of four clear reasons for TESSA impact.

(a) The ready appeal of the TESSA approach, and ease of integration into curricula

Questionnaire item D3: *Please comment on how easy or difficult it may have been to integrate the TESSA module into your existing course design. If there were difficulties, how did you deal with these?*

Responses indicated that 34 (69%) of the sample of teacher educators had found TESSA materials easy to integrate into their curricula. Examples of expressions of the ease of integration are:

- “I found it easy to infuse TESSA materials to my module because the materials are user-friendly, simple and concise. The innovative teaching strategies are exciting.”
- “Easy integration as the institute invited experts from tertiary institutions who worked with its staff to infuse TESSA elements into our course materials.”
- “Incorporating TESSA materials will not be difficult because my approach to my courses is influenced by my belief in learner-centred teaching approaches which TESSA materials tend to promote.”
- “They can easily be adopted, there is no difficulty at all.”
- “It was not difficult to integrate TESSA in our existing course design as some units were similar or were aiming at the same learning outcomes.”

Adaptations, when needed, appeared to be achieved with little difficulty: “Not all TESSA resources are in line with the school curriculum so I only incorporated the resources which addressed some of the aspects in our school curriculum.”

Instances of difficulty cited issues not related to the materials and their use, but rather to logistical problems accessing the materials:

- “It has been difficult because it requires both teachers and learners to procure materials for instruction.”
- “The challenge was, most student teachers had no computers of their own and they need to pay some money before being allowed to access the Internet on campus. This way, some were not able to afford such payments, and for that matter, they find it difficult using the Internet cafe.”

One teacher educator in responding to this question commented on the difficulty posed by ‘student culture’: “... the student learns only those things which are likely to be tested in examination situations. The students had to be sensitized on what learning is all about.”

Another found the level of the materials too low for the senior secondary school: “The TESSA materials might be more appropriate to lower grades.”

(b) TESSA materials ‘fitted’ with, and enhanced, normal teaching styles

Questionnaire item D5: *How did the TESSA materials ‘fit’ with your normal teaching style?*

According to 45 respondents (92% of the sample), the materials were *now* fitting in with their normal style of teaching, and with positive outcomes (as above). Achieving this ‘fit’ had been a challenge for those to whom the TESSA approach differed in some ways from what was normative in their practice. For example:

- “The TESSA activities are easy to adapt, I found them to be challenging at first but as I continued engaging with them I found them to be exciting.”
- “... I found that I had to use group work more in teaching as opposed to my earlier practice.”
- “I know new approaches to teaching; Different ways of new technology of teaching; How to assess my pupils during the year.”
- “It has greatly led to changes in the way I think and plan my teaching. In my case I was able to refer teacher-learners to the Internet as a resource for innovative teaching methods, something I had never done before.”

For others, TESSA had reinforced philosophies they already held or added new dimensions to their present practices:

- “TESSA foregrounds learner-centred approaches, and learner centredness is one of the principles of Outcomes Based Education (OBE), a teaching philosophy adopted in South Africa’s curriculum. TESSA therefore exposed my students and myself to more approaches and strategies of creating learner-centred environments.”
- “The materials fitted into my teaching philosophy since as a reflective teacher, I like introducing new and exciting ideas into my teaching, so the resources have been helpful. Again, with my philosophy being that of constructivism, students’ ideas are sought and incorporated into lessons ...”
- “TESSA materials reaffirmed my belief in learner-centred pedagogy ...”
- “TESSA materials ‘fit’ with my normal teaching style of preparing teachers with self instructional materials.”
- “I personally use learner-centred approaches in my teaching. However, the case studies in the TESSA materials provided another window I could use to improve my teaching.”
- “... Reinforced problem solving and project methods in teaching science and agriculture courses.”

(c) TESSA enhances student learning

Questionnaire item D4: *Please comment on your experience of the TESSA materials in relation to your students’ learning.*

Forty-five (92%) of respondents declared that use of the materials had enhanced student learning. By far the dominant theme in teacher educators’ comments is that of students having

acquired a new repertoire of skills involving active learning methodologies. Typical comments were:

- “Students of the Early Childhood programme find the methods pupil-centred and therefore very engaging.”
- “The comment they generally gave was that the TESSA materials were good for teaching purposes because they encourage active learning.”
- “Some of my primary school teacher trainees were encouraged by the TESSA material to venture into the project-approach in science teaching, something they always felt inadequate about before the TESSA experience.”
- “... motivating, encourages experiential learning, leads to creativity and innovation based learning.”
- “Our student learners show great evidence of enjoying TESSA materials through their interest in and keenness to utilize the TESSA approaches and methodologies.”
- “We can notice both the teachers and the learners are in harmony. We have learned a lot from TESSA particularly in Methodology.”
- “Students commented that they found the materials novel. They had to change their old didactic methods and adopt the participatory approaches accessioned by the TESSA materials.”

Even more compelling evidence of the effectiveness of the materials is evident in responses that refer to teacher-learner performance in micro-teaching or practice teaching situations. Because of their significance, a number of such statements are reproduced here:

- “The use of TESSA material has improved the effectiveness of students’ performance especially during the Teaching Practices as it exposes them to various methods of teaching and proper selection of teaching material and presentation.”
- “TESSA materials make learning real. It is very effective when honestly used. When used in some sample schools, learners performed better in their classes than those not used.”
- “Students use the TESSA materials during teaching practice and I believe they learn new methodologies and approaches to lesson planning, presentation, and general classroom management.”
- “[Students] ... have embraced activity-based learning in their teaching. In some schools the practising teachers and the Head Teachers have commended the approach and in some cases, their results at KCPE (Kenya Certificate Preliminary Examination) have greatly improved.”
- “My students found the materials a useful resource for preparing their lessons for micro-teaching practice. The student teachers among them commented that the materials made them realise their own weaknesses in their teaching approaches before their enrolment.”
- “Students really like the TESSA materials as they find them useful and helpful in designing their peer teaching lessons. In their view, the TESSA resources gave them alternatives to planning and modifying their teaching lessons plans and sources of knowledge for their assignments.”

(d) TESSA is aligned (or easily adapted) to national policies

Questionnaire item D7 asked: *What is your view on the suitability of the TESSA materials you have used for your country context?*

Three respondents offered no comment, but of the 46 (94%) that did, all regarded the materials as compatible with national policies. Typical of these responses, many of which mentioned the country by name, was the comment: “The materials talk to the current curriculum in SA There is ‘Africaness’ in the TESSA materials.” In some accounts, the materials spoke even more persuasively to national policy:

Yes of course. The utility of the materials won the heart of authorities of the supervisory agency of teacher education in Nigeria (NCCE) which developed a framework for infusing it in teacher education curriculum for the country.

The comfortable ‘fit’ between materials and national policy is not surprising as TESSA, as we have seen, has been used primarily as a methodology. As a Nigerian respondent noted: “TESSA materials emphasize methods and do not in anyway interfere with institutional or national policy.” In fact, the practice/ policy ‘fit’ applied to the institution as well as to the national context:

TESSA materials fit well into the policy of my university. The University is committed to producing reflective teachers who are committed to the use of learner-centred pedagogies. The national policy on teaching at the basic and secondary levels of education emphasises learner-centred teaching approaches.

However, a caveat on the importance of teacher educators making appropriate selections and adaptations was built into many responses, such as:

- “TESSA materials are compatible with the principles of our curriculum ... [but] ... they need to be modified to suit the situations in a given country.”
- “Most resource materials are locally available and only need teacher creativity in planning how, when, and where to use.”

Viewed from the project perspective, the need for materials to be selected and adapted is of course a positive, not negative, feature. Appropriate adaptation of the materials is precisely what the project intended, and adaptation of this kind is an essential part of advanced teacher professionalism. According to one correspondent, the materials provide such a suitable basis for adaptation that those written for specific country contexts have potential in other countries: “The materials are suitable to Ghana's context. This is because they are adapted and re-mixed with our curriculum. In addition, materials from other TESSA countries serve as alternative resources to ‘top up’ what is in Ghana's site.”

4.2.5 TEACHER EDUCATORS’ THOUGHTS ON IMPROVING TEACHER EDUCATION IN THEIR OWN COUNTRIES

The most open-ended of all Questionnaire items was the concluding invitation to teacher educators to identify changes that they believed would benefit teacher education in their own countries.

Twenty-eight (57%) of the sample responded to this invitation. Some raised issues not directly connected with TESSA, such as the remuneration and status of teachers. Others mentioned the need to extend use of TESSA in schools and colleges of education.

With regard to thinking about the future of TESSA, respondents raised a number of significant points in relation to the fact that TESSA was as yet but one element within teacher education programmes. The following statements imply that more thought needs to be given to placing TESSA *within* rather than *alongside* the rationale or philosophies that underpin programme design:

- “Teacher training easily becomes compartmentalised as one department deals with teaching strategies and the other with the management of teaching and learning. There might be little coherence between the two components ...”
- “Teacher education should be led by a firm philosophy or paradigm that will predetermine the approaches and strategies to be followed by teacher training institutions. Method is only but one small component that has to be supplemented by a much stronger pedagogy linked to the subject discipline.”
- “[With regard to programme aims] ... there should be more emphasis on what contributes to effective teaching and learning and less on history and theories – focus on competency of an effective teacher / effective teaching. Focus more on activity-based learning.”

An interesting ‘threat’ to TESSA was added to the problem (also mentioned frequently in interviews) of teacher educators adopting a ‘business as usual’ attitude:

The first thing will be textbook writing and tender policies. ...Textbook tender in Ghana is often influenced by people with political or financial powers who are able to influence the selection of textbooks that are used across the nation.

The ‘tender’ problem could be equally prevalent in countries other than Ghana. Amidst the current welter of public accusations and counter accusations about the state’s non-delivery of contracted textbooks to schools in Limpopo province, South Africa, clarity emerges on only one issue: the textbook industry is massive, and those with political connections to manipulate tenders represent an exceedingly powerful vested interest group with whom TESSA advocates would have to contend.

4.2.6 TRIANGULATING DATA FROM THE TEACHER EDUCATOR QUESTIONNAIRE

The overall view of teacher educators’ practices and identities derived from the Questionnaire is strongly supported by similar sets of data from:

- Institutional case studies: Coordinators’ case study reports are rich in examples of success in use of TESSA as well as of members of staff becoming adherents of the TESSA approach.
- Teacher educators interviewed on site, e.g.:

- “I was volunteered to develop materials but found it interesting and became an advocate.”
- On the experience of using TESSA in ‘Principles and General Methods of Teaching’: “Students have reacted very positively to my course.”
- “I found it [the materials] met a need. We are stranded in subjects like Science.”

The only notable disjunction is that respondents to the questionnaire viewed TESSA as being more unproblematically compatible with national policy than did a small number of those interviewed at case study sites. It might be that personal communication rather than questionnaire response makes it easier for respondents to verbalise uncertainties and doubts. Certainly, doubts expressed by a number of teacher educators at UFH (3.2.2 above) stemmed from uncertainty rather than firm evidence of tension between TESSA and national policy.

OLA College provides an interesting form of triangulation as it represents a case of adoption of TESSA without the project and networking support enjoyed by the partner institutions. Of the nine OLA staff who completed the Teacher Educator Questionnaire, only four encountered TESSA through their own institution. A further four reported having come across TESSA on the Internet; and one heard of the materials from a colleague at a university. Nonetheless, from across staff offering all subject areas taught in the College, responses echo the views of their counterparts in partner universities. The similarity is such that if these questionnaires had been conflated with those from partner universities the percentages and views reported in 4.2.3 and 4.2.4 above would remain virtually identical.

The only two noteworthy – and very interesting – differences at OLA concern emphasis on *technology* and the *adaptation* of materials. Whereas at partner universities, where TESSA appears to be seen as the Coordinator, at OLA TESSA is seen as the website:

- “They [students] loved the website because it opened up a whole new world of resources to them.”
- “Incorporating TESSA modules into my teaching has been easy because my students have access to the Internet ...”
- “I guide students to select suitable materials from the website and help them to prepare for the lesson.”
- “Positive responses have come from the students as to the resources provided on the TESSA website.”
- On recommended changes to the system of teacher education in Ghana: “I would look at the integration of ICT into the teaching and learning in teacher education in order to facilitate the delivery of lessons.”

Examples of OLA staff emphasis on the adaptation and improvisation of materials include:

- “... the only difficulty we had is adapting some of the materials, so we have to improvise.”
- “Most examples and materials in TESSA are not ones we can easily find in our own context. However, we are able to improvise in most cases to reflect the real situation on the ground. TESSA gives you the information you need for improvisation.”

The OLA monitoring report makes the same point: "... students are able to improvise some of these proposed TESSA material as their TLMs for enhanced and effective teaching and learning" (OLA, 2012, p. 4).

4.2.7 CONCLUDING JUDGEMENT ON IMPACT ON TEACHER EDUCATORS

Data from a range of sources converge in pointing to the significant influence of TESSA on the practices and identities of teacher educators. Impact on the identity of their institutional home – the faculty - is also evident. At Egerton, for example, the DVC pointed out what faculty staff themselves were saying: The Faculty was "reaching out to the community" for the first time.

4.3 IMPACT OF TESSA ON TEACHER-LEARNERS

4.3.1 IMPACT ON TEACHER-LEARNERS AT PARTNER INSTITUTIONS

This account is based on interviews with 14 former Egerton students and 5 current senior students in the ECCD programme at UEW.³⁴ Although at different stages of their career development, both sets of students had been exposed to TESSA training and all had had experience of using TESSA in the classroom.

In the interests of a holistic overview of the experiences of teacher-learners, the following account does not distinguish between the Egerton and UEW students unless the contexts framing their experiences have clearly contributed to differences.

4.3.1.1 CONCEPTUAL UNDERSTANDINGS OF TESSA

The opening, open-ended question to the focus groups was: "What is TESSA?" Responses focused on three main attributes.

(i) *TESSA is a methodology that promotes active learning:*

- "...a teaching approach that enhances pupils' understandings."
- "New, good methods of teaching that involve children more."
- "A project that promotes child-centred learning."
- "... to improve learning by promoting active learning."
- "TESSA is a scaffold supporting the teacher in focusing on learning, not teaching."

(ii) *TESSA encourages resource-based learning:*

- "... a companion that makes materials available – and teaching exciting."
- "TESSA emphasizes use of resources which are in the environment."

³⁴ Students were unfortunately not available for interview at the time of the UFH site visit.

- “It’s about use of materials but you can change them. Existing materials are useless. With TESSA you can change them to suit another lesson.”
- “Enable teachers to appreciate use of local materials.”

(iii) *TESSA encourages more open social relationships that promote learning:*

- “... a teaching approach that encourages interaction between teachers and learners and learners and learners.”
- “It’s an ongoing professional development initiative to improve teaching through materials, reflections and sharing experiences with one another.”
- “Empowerment of collaboration between teachers and learners.”
- “Teachers who share. I shared with a Nigerian student. We discussed how we handled a particular situation in different ways and what we could learn from each other.”

4.3.1.2 EXPERIENCES OF USING TESSA

(a) Use of TESSA has resulted in more effective learning

Although respondents commented on challenges (see below), their classroom experiences were remarkably positive. The following comments are testimony to successful implementation of their conceptual understandings of TESSA.

- “I’ve learnt to use local materials, like shells which we paint. Children aren’t alienated by the materials they’re familiar with, and they learn! We use local, not foreign materials. Last time I used a pumpkin to teach fractions.”
- “How to teach reading is good. We read signposts on roads, and signs, advertisements. It’s a great experience when we take kids outside, and they can read.”
- “I used to lead everything. It’s what I learnt in secondary school. Before TESSA I was solely the master. I’m very proud.”
- “I’m a better teacher, aware of development approach – age, ability, level of development, interests ...”
- “One great thing about TESSA. Every lesson has one activity ... suggested activity with keywords ... these lay down the process.”
- “The National Curriculum is scant. TESSA gives you options.” [Ghanaian student]
- “Now children learn they can *do* – develop self esteem and learn to work with others. “
- “TESSA gives the examples and the materials ... the materials enable problem solving.”
- “TLMs are key. Teachers find it difficult to develop materials. TESSA has done the work for you. But gives the message that your can adapt. It’s not hard to do that. You have the liberty.”

(b) TESSA has been a springboard to further OER use

There were indications that their OER grounding in TESSA had enabled teacher-learners/teachers to further extend their teaching repertoires:

- “I go to other websites – Google etc – I found a US website using plastic pebbles as counting objects. I took the idea and use shells.”

- ‘OER aren’t simple to find, but when you find them, they’re easy to adapt.’

(c) TESSA practices have influenced other teachers

Apart from promoting learning in their own classrooms, there were a number of indications that the TESSA approach had influenced other teachers:

- “They were amazed when we used local materials.”
- “Instead of locking themselves in their classrooms, teaching in isolation, teachers have started to share together.”
- “Those who now use TESSA are more open to observation and suggestions and criticism.”
- “We have Subject Panels [in Kenya] but they were dead – TESSA provides a way forward.”

(d) Activity-based teaching and educational theory

In addition to affirming the practical promise of TESSA, students contributed a further key insight into the place of TESSA within programmes of teacher education. One of the ECCD students at UEW offered the remark that TESSA is “propounded by some people out there.” When asked to identify “some people”, three students commented as follows.

- “John Dewey. Children learn by doing, curiosity.”
- “Piaget talks about stages of learning. Progress from one stage to the next. TESSA shows what is related to Class 1, Class 2, etc. It’s developmentally appropriate.”
- “They are good friends, Dewey and TESSA.”

Not only had these students linked theory and practice in a way that teacher educators would find admirable (and indeed may not even have thought of themselves). They were highlighting the fact that TESSA is not a discrete, add-on component in teacher education. It is immersed in respected theoretical traditions,³⁵ and is best not viewed as a separate – or worse, competing - ‘brand’ as an organizing principle for curriculum development.

This group of students had articulated and made explicit what other teacher-learners understood at the more implicit level. The following statement drew nods and exclamations of support from other students in one of the focus groups at Egerton:

“Training told us *what we should do*. TESSA shows you *how to do things*.”

All of these positive developments have not been achieved without challenges, however.

4.3.1.3 CHALLENGES IN USING TESSA

(a) Using TESSA makes demands on one’s time

- “Planning with TESSA takes a lot of time.”
- “Preparation time is greater ... [TESSA] really works if you love your work”.

³⁵ As argued under 1.2.1(b) and 4.1.3.2 above.

(b) Conditions in schools may not be amenable to TESSA

Some head teachers, fellow teachers and pupils were not always supportive, e.g.:

- “Head teachers are not exposed to TESSA. They collect the material. That’s how it gets lost.”
- “The slow pace of adapting to the new TESSA approach by some teachers who still feel they need more training to make them feel confident, as we all know old habits are hard to die.”
- “Lazy teachers [all present laugh]. They love themselves more. TESSA materials are available and some have never used them.”
- “Our pupils. It’s very difficult to get them to work themselves. They’re used to listening.”
- More discretely, but enigmatically: “Humans do not embrace change easily.”

(c) Concerns about TESSA compatibility with the national school curriculum

Several teacher-learners/ teachers in Kenya echoed the view of the Dean at Egerton: “We need the blessing of all stakeholders. In Kenya KIE is important. The Ministry is important.” For example:

- “The ones in charge of the curriculum – they must make it a policy – the materials.”
- “Teachers need to see policy coming from the Ministry.”
- “They need to reach out to critical stakeholders. Start through the KIE, and QAOs. Then it will trickle down to reach the various zones.”
- “KIE should incorporate TESSA into Teachers’ Guides.”
- “The curriculum says what I must teach when. It’s like the Bible.”

Teacher-learners in Ghana experience fears of policy constraint to a lesser degree. Referring to the need for more widespread TESSA training, it was argued that: “Head teachers should be invited. And circuit inspectors. They try and match with the syllabus, not development of the child. But some are open minded.” A fellow student, revealing the extent to which his professional identity had been influenced by TESSA, responded: “The whole thing boils down to reorienting the whole system. It depends on us.”

(d) Logistics and ICT

By far the most serious obstacle to use of TESSA materials in the schools in which they teach is the absence of ICT infrastructure, and even electricity. Table 7 reflects the (non) availability of these assets in the schools in which respondents had taught or were teaching.

Table 7: Number of respondents reporting the presence of infrastructural assets in the schools in which they practised

Infrastructural assets in schools	Egerton students reporting existence of asset N = 14	UEW students reporting existence of asset N = 5
Electricity	7	3
A functional computer	5	1
Internet access	2	1
Photocopy machine	4	0

The sad picture that emerges from this small sample is very much in line with that emerging from Coordinators' case study reports. Almost without exception, ICT infrastructure heads the list of challenges reported by Coordinators.

The plight of students eager to use the materials was expressed in comments such as: "We're given the syllabus but don't know what activities we'll use and can't take hard copies of all resources." Even if infrastructure essential for resource-based teaching were in place, the issue of teacher competence to utilize the resources would be a challenge. As one teacher-learner remarked: "Teachers say: 'Where is the PC?' Most aren't computer literate anyway. You'll have to teach them."

Implications of the lack of infrastructure on use of TESSA with associated constraints on pedagogy are addressed in section 4.5 below.

4.3.2 IMPACT ON TEACHER-LEARNERS AT NON-PARTNER OLA

Separate focus group interviews were held with a group of 9 current teacher-learners and 4 OLA graduates. The responses of these two groups are conflated in the following brief overview of their experiences of encountering and using TESSA.

In contrast with students at the partner universities, responses to the question: "What is TESSA?" produced fewer perspectives on features of TESSA within aspects of teaching and learning (such as resources or methods). Teacher-learners at OLA elided TESSA with teaching and learning *itself* in a way that seemed true to the motto: "TESSA! Education at Heart." The first responses to the question about TESSA simply spelt out the meaning of the acronym itself, as if it were self-explanatory. When pressed for detail, respondents' definitions were best captured in the comment: "TESSA is one word for teaching and learning. Like a tree that has roots and branches."

When pressed further for detail, definitions were offered such as:

- "It's a website. You can go to the website anytime and be guided."
- "OER topics are selected and developed. It's run by the Open University."

These definitions had clear reference to the web-based way in which TESSA materials were being used at OLA (see section 3.4).

All reports on using TESSA in classrooms were positive, as the following examples of usage suggest:

- “Literacy. I needed more resources. It was very helpful.”
- “In Science when the children ‘play’ they don’t know they’re learning.”
- “The different activities for collecting and handling data were brilliant.”

At least some of the respondents were using the resources in a conjectural way that would meet with approval of ‘action research’ theorists: “We learn the theory about TESSA, then go and practice it yourself. Don’t know if it’s going to work or not.”

Like their counterparts in the partner institutions, respondents at OLA reported ICT problems as the biggest obstacle to use in schools. Nevertheless, there were attempts to overcome the problem of lack of infrastructure by using an Internet café, and mobile phones. The headmistress of one of the graduates arranged a staff development activity on TESSA in her home so that her staff would become aware of the resources on the website.

Teacher-learners also presented themselves as committed TESSA advocates. In an interesting reversal of the usual relationship between students and their supervising teachers, respondents observed that:

- “They learn from you!”
- “Teachers tell you you have new ideas.”
- “Teachers ask where you got it [the resource being used].”

Teacher educators at Egerton, UFH and OLA suggested that there should be a training module on the website for those who wished to be TESSA advocates. Other respondents felt that TESSA had its own momentum: “TESSA will spread its wings. The website is there.”

4.3.3 CONCLUDING JUDGEMENT ON IMPACT ON TEACHER-LEARNERS

TESSA has clearly had high impact on teacher-learners’ practices and sense of professional identity. In this sense, data from the evaluation site visits and interviews confirm Coordinators’ research findings reported in the institutional case studies. Coordinators typically report, for example, that: “Positive [student] responses are particularly marked for the influence of the TESSA materials on reflective practice (91%) and on stimulating learning (88%)” (Muganda, 2011: 12).³⁶ The only discordant data comes from a limited number of student evaluation forms supplied by the University of Pretoria, and in which some senior phase students noted that there were no TESSA materials for subjects such as Economics and Accountancy. Otherwise, accounts from all students, and most notably those from OLA, provide clear evidence of TESSA having been instrumental in moving students towards the ideal described by Darling Hammond

³⁶ See also section 3.1 above where it is reported that case study research at all partner institutions found that “TESSA had had a marked impact on the level of student interest and on their understanding of interactive learning and assessment”.

(2008: 93): “Teachers learn best by studying, doing, and reflecting; by collaborating with other teachers; by looking closely at students and their work; and by sharing what they see.”

4.4 NETWORKS

The key evaluation questions about networks were:

What network activities have been developed within the partnership and with other key stakeholders? How have these networks enabled or constrained project implementation? What are the emerging outcomes and their implications for future network activities for TESSA partners?

These questions are addressed mainly on the basis of the ‘network maps’ that TESSA coordinators developed. Findings are presented below.

4.4.1 NETWORK TYPES AND ACTIVITIES DEVELOPED

There are seven network types that TESSA coordinators at partner institutions have formed, each associated with specific activities and underpinned by certain motivations. The network types are:

(a) Intra-institutional networks

These are network types that the respective TESSA Coordinators, who in most cases were at the centre of network formations, established within the respective partner institutions. This type of networking involved the establishment of links with teacher-learners, teacher educators, Faculty Management and University-wide Management (at the level of Vice Chancellor or Deputy Vice Chancellor in charge of Academic Affairs). However, except for Egerton University, Open University of Tanzania and University of Zambia all of which show that the intra-institutional network involved linkages with senior university-wide management, all other networks were concentrated at Faculty level where the Faculty Dean was the highest ranking officer in the network. This minimal interaction with ‘top management’ in partner universities might explain why embedding of TESSA at institutional policy level has been generally weak. Indeed, where intra-institutional networks included senior university management as at Egerton and University of Zambia, it was reported that the management, after exposure to TESSA materials, asked the TESSA host Faculties to run pedagogy courses for university lecturers. The main activities under this type of networks include: sensitization and induction workshops on TESSA OER use; embedding processes, especially integration of TESSA into various forms of teaching and learning activities; research and development, including research on TESSA OER undertaken by staff and students; monitoring and evaluation of TESSA use; and general advocacy.

(b) Intra-TESSA consortium networks

The TESSA consortium comprising the present 13 partner institutions constitutes one of the most important and valued networks already established. Through the consortium, strong linkages have been established at both individual level (between TESSA Coordinators) and institutional level (between TESSA partner institutions). Important activities have taken place and are taking place under this type of networking, key among them being:

- collaboration in research, writing and publications;
- conferences and workshops for the sharing of information and experiences, including strategies for embedding TESSA;
- exchange of periodic project progress reports and TESSA Newsletters;
- external examining, where some coordinators have been appointed external examiners for normal university examinations in other partner institutions.

(c) Schools and Teacher Training Colleges (TTC) Networks

All network maps developed by TESSA Coordinators showed strong established linkages across partner institutions and schools, while in addition some (Kyambogo in Uganda, UEW in Ghana, NTI in Nigeria, UNZA in Zambia and OUT in Tanzania) showed linkages with teacher training colleges within the country. Schools have provided platforms where many activities involving use of TESSA OER have taken place. These activities include:

- teaching practice, where teacher-learners use TESSA resources;
- trialing or piloting of TESSA modules;
- CPD workshops for teachers;
- research sites for TESSA OER use;
- recruitment and training of Mentor Teachers for teaching practice;
- and, more importantly, embedding and extension of TESSA OER use by regular primary school teachers with learners in classrooms.

As we have already pointed out in other parts of this report, TESSA use in primary schools by teachers seemed, in some cases, more pronounced than within partner institutions themselves. TTC network activities involved external moderation of teaching, learning and assessment processes at TTCs by partner universities that had direct mandate as external quality assurance agencies. Besides, some partner universities used these networks to advise and influence curriculum reviews and this offered avenues for 'infusion' of TESSA OER into TTC mainstream teaching and learning activities.

(d) Materials Development and Curriculum Review Networks

Upon realization that one of the best entry points for embedding TESSA OER, whether perceived as "teaching resources" or as "methodology," was through curriculum development and/or review initiatives and processes, TESSA Coordinators (and by extension, partner institutions) have strategically established linkages with materials development and curriculum review initiatives or agencies. These include: African Council for Distance Education (ACDE); African Virtual University (AVU); OER Africa; Centre for Education Policy Development (CEPD) in South Africa; Kenya Institute of Education, and the Centre for Mathematics, Science and Technology Education in Africa (CEMASTEA) based in Kenya; National Centre for Curriculum Development (in Sudan); Voluntary Service Overseas (VSO) in Ghana; and the National Curriculum Development Centre as well as Intra-Mark Partners (in Uganda). Activities carried out under these networks range from capacity building workshops in materials development, funding of curriculum development and review activities, invitation of TESSA Coordinators as Key Resource Persons at workshops organized by those bodies, and, in some cases, ICT infrastructural support to TESSA partner institutions. The cumulative effect is provision of

opportunities for induction and extension of TESSA use beyond respective universities and their national boundaries.

(e) Ministry of Education and Local Branch Networks

In all cases reviewed, TESSA partner institutions have established some form of linkage with the national Ministries responsible for primary education and teacher training. The key motivation for the establishment of such linkages has been either to gain unhindered access to schools or to win support of local education officials, or even further to influence national policy on teacher development and OER use. Although these networks have had varying levels of success (modest in some cases), two countries have had an almost overwhelming national endorsement of TESSA. These are Sudan (through a national Teacher Education Programme spearheaded by the Open University of Sudan) and Zambia (through the Zambian Open Community Schools project)³⁷. The TESSA Coordinator has attributed the contribution and impact of TESSA to teacher educators and teacher education programmes through the Zambian Open Community Schools to “the TESSA magic”. Commenting on the impact of TESSA, he remarked:

The Zambian Open Community Schools have done better because of use of TESSA materials. The Ministry of Education is now talking to them to establish why community schools that mainly use Untrained Teachers are doing better in exams. So now, the Ministry of Education’s policy is to take up those schools. Since the community schools have had their performance in examinations shoot up after they started using TESSA resources and methodology, once the Ministry takes them over, the TESSA magic will be brought on the table with the Minister. In fact, it is already happening!

When probed further with the question “What is the magic of TESSA that will be presented to the Minister of Education?”, the Coordinator explained:

The magic of TESSA is that it frees the teacher from thinking that he must be a ‘know it all’; it involves active student participation. This is the sweeping change and its impact is now being felt through enhanced performance by the students from poor and under-resourced community school.

The above observation points to the wider impact TESSA OER can have. It also reinforces the dual view and presentation of TESSA OER: first, as teaching and learning resources; and second, as a teaching methodology or approach to teaching.

(f) Other Educational Projects Networks

These mainly refer to networks that have been established with other educational projects targeting schools and teacher development, either at community or national level. The main motivation for such networks seems to be that of ensuring sustainability of TESSA project

³⁷ See <http://www.zocs.org.zm>. This is a consortium of schools in residential areas, especially in impoverished catchment areas, run by an NGO, and which strives to attain the same primary education in 4 years that children receive in 7 years in the formal education. They have been making use of TESSA materials in schools, having been linked by the University of Zambia. Early indications are that TESSA materials are having a sustained impact on the skills and teaching methods of untrained teachers in ZOCS schools. The Government of Zambia is aware of this and is actively looking to use TESSA materials as part of their current drive to upgrade both community schools and government schools.

activities (through financing the production of TESSA resources in either print or CD, further CPD workshops for teachers in service) and extending TESSA use in other schools/regions. A classic example of this type of network was evident in network maps produced by University of Fort Hare, University of Zambia and University of Cape Coast.

(g) Community Based Organizations and Civil Society Networks

This type of network was particularly pronounced at the University of Cape Coast in Ghana. The major activities undertaken or enabled under these networks relate to social intervention programmes that make extensive use of TESSA resources. These include literacy and numeracy programmes run by CBOs and other civil societies.

4.4.2 HOW NETWORKS ENABLED OR CONSTRAINED PROJECT IMPLEMENTATION

As already pointed out, project objectives were to:

- create a network of African universities, working alongside the OU and other international organisations to focus on the education and training needs of teachers in Sub-Saharan Africa;
- support the exploration of and development of school-based modes of teacher education in which teachers develop their competencies and skills to meet the need of pupils in their own classrooms;
- design and build a multilingual Open Education Resource (OER) bank, modular and flexible in format, that is freely available to all teachers in the region.

The issue for evaluation then is whether (and how) the networks developed and their underlying activities have constrained or enabled achievement of the project objectives.

From our analysis of networks as presented in the foregoing section, it is evident that the networks have significantly enabled project implementation. The TESSA network has grown far beyond the original TESSA consortium partner institutions. TESSA use has been and is still being, extended to classrooms in primary schools in Africa, and significant CPD activities, largely enabled by TESSA resources for teachers, are taking place (Murphy & Wolfenden, 2013). Besides, the TESSA initiative seems to have provided a good case study on how to cascade education reform initiatives from the 'bottom' to the 'top' (from the grassroots to the centre). This is because TESSA went directly to universities where teacher education and training takes place, and then universities have established networks that have grown to embrace National Ministries of Education (or their local departments in regions where partner universities operate). Although this model is slow in influencing national policy on teacher education and development or on curriculum, it does bring the fruits of reform or benefits of the project directly to schools, teachers, teacher educators and pupils. In this way it overcomes the usual bureaucracy that is associated with policy stagnation or fatigue.

There is one emerging cautionary observation though, and this is that where networks were developed with the *TESSA Coordinator* rather than the *institution* as the core or at the *centre* of networks, the ensuing activities have tended to result in highly individualized drive with minimal institutionalization. Moreover, experience has shown that whenever the TESSA

Coordinator leaves the partner institution, some of the networks tend to be lost or slowed down, often partly due to unclear succession mechanisms from one Coordinator to the next.

The emerging outcomes of networks and their implications for future network activities for TESSA partners are discussed in the concluding section of this report.

4.5 ICT

4.5.1 THE ICT INFRASTRUCTURE

The evaluation question addressed here is: “What has been the role of ICTs in the process of TESSA implementation (at different levels; teacher education institution level; individual)?”

All data sources (Coordinators’ case study reports, Interviews, Questionnaires) refer to the difficulty of accessing TESSA materials as the foremost obstacle to TESSA ‘take up’ and use in different settings. Academic staff in partner universities are themselves certainly not immune to this difficulty either.

Responses to the Teacher Educator Questionnaire indicate that only 5 (10%) first met TESSA on the Internet (76% learnt about TESSA from within their own institution, with the balance hearing about TESSA from colleagues from another university). Academics’ use of communication tools was also built into the Questionnaire. Although the response rate varied considerably from item to item, the raw scores reproduced in Table 8 provide an overview of academics’ use of the technology.

Table 8: Communications Tools

(i) Do you use the following?	Often	Sometimes	Never	What is it?
TESSA forums on the website	11	26	8	
Facebook	8	7	20	
Another social network	3	12	15	
<i>Please give detail:</i>				
Twitter	1	4	24	
(ii) Do you use the following tools?	Often	Sometimes	Never	What is it?
e-mail	37	9	2	
Skype	7	13	10	
Another communication tool	6	7	4	1
<i>Please give detail:</i>	Facebook, UTube			
Blogs	1	7	21	1
<i>Please give detail:</i>				
Wikis	1	9	20	1

<i>Please give detail:</i>				
E-books	10	12	11	2
<i>Please give detail:</i>				
Apps	1	5	13	6
<i>Please give detail:</i>				
(iii) What hardware do you use?	Yes	No	More details	
A desktop computer	40	5	Operating system: Windows 23	
A laptop	45	1	Operating system Windows 21	
A tablet	7	10	What type? iPad 1 , Samsung 1	
A mobile phone	31	3	What type? Nokia 9 , Samsung 7 , BlackBerry 6 , Smart 2 , iPhone 1 , Tecno 1 , Zain, 1	
Do you have a mobile phone?	Yes	No	What type? (<i>please write in</i>)	
	45	-		
If 'Yes' do you also use it for: (more than one, as appropriate)	Text messages	Email	Accessing the internet	
	44	27	29	

Inferences on such data are precarious, but two overall inferences have plausibility. First, as far as ICT is concerned, the sample of teacher educators does not appear to be strongly 'networked'. Although the majority uses email, there is very little social networking. Testimony to TESSA as a project might be inferred from the fact that engagement in TESSA forums outweighs participation in Facebook and Twitter!

Second, there are grounds for suggesting that although almost all respondents have both a desktop computer and a laptop, their institutions do not provide adequate Internet connectivity. Why else would more than half use their mobile phones for purposes of emailing and accessing the Internet? The evaluators experienced the problem of connectivity first hand. A small number of Coordinators use an institutional email address. In several such cases, email communications to Coordinators 'bounced back', repeatedly, as 'undeliverable'.

For the same reason, the picture of teacher-learners' use of the materials is dominated by 'hard copy' print versions and CD (see Table 3). One HEI makes materials available on the intranet, and six other partners mention the Web as one of the means through which materials are made available to students. Of these, only the University of Pretoria uses the Web as the sole means of student access. And even here, 10% of the students reported difficulty in accessing material online (Buckley, 2011). OLA, as has been seen, adopts a model that involves students accessing the TESSA Website and selecting materials to use and adapt in line with their professional judgment. Notwithstanding this context where "Technology is now the ruler" (OLA Tutor in focus group interview), academics pointed to the difficulty of downloading any item in excess of 120 kilobytes. Even so, OLA might still be better off than most other colleges. In working with colleges, Kyambogo distributes printed copies of TESSA materials and is able to make only

limited use of CDs (Kaije, 2011). KIE reports the same difficulty. It hands out CDs, which some colleges are unable to print (Rutebuka, 2011).

Conditions in schools in which teacher-learners practice ultimately enter as fully fledged teachers are even more problematic in relation to ICT. In addition to the kinds of difficulties mentioned above, many do not have electricity (see Table 7, section 4.3.1.3).

Of course, inadequate ICT infrastructure goes hand in hand with, and is exacerbated by, lack of expertise and confidence in utilizing the technology. This has consequences for TESSA.

4.5.2 CONSEQUENCES OF LACK OF INFRASTRUCTURE

The teacher who brought her laptop to the focus group interview comprising OLA graduates provided the most poignant example of the reality of lack of infrastructure. Holding up her personal Notebook for display, she said that was what she did for her pupils, to show them what a computer looked like.

Lack of ICT infrastructure in schools does not only limit access to TESSA materials. In schools that should derive most benefit from OER, costs are increased. Muganda (2011: 16) provides a good summary of the overall picture:

Although the DPTE students found TESSA materials user friendly with useful teaching techniques, relevant activities and adequate illustrations, access was limited by the bulkiness of the materials, which makes printing costly. Other challenges include lack of computers, connectivity and electricity, as well as inadequate ICT skills.

In the teacher education faculties, lack of ICT has consequences more serious than the ease and cost associated with the accessing of materials. The hard copy/ CD format makes *use* of high quality materials possible. But the digital version allows for the kind of *adaptation* that characterizes best practice in both teacher education and utilization of OER. When teacher-learners access the materials themselves, in accordance with needs, as do the on-campus teacher-learners at UEW, the Coordinator observes that: "We stress adaptation more than adoption". The same appears to be true of other instance where use of TESSA is linked to the practice of teaching. At UP, for example, 87% of the students adapted the materials they downloaded, "to suit their curricular, learning and cultural agendas" (Buckley, 2011: 1).

4.5.3 CONCLUDING JUDGEMENT ON ICT EFFECTS ON USE OF TESSA

First, we note that the successful impact of TESSA (as outlined in earlier sections) has been achieved despite the lack of necessary ICT infrastructure. The high quality materials have had significant impact.

Second, however, we note that not only does lack of infrastructure make access to the materials more difficult and expensive (thus thwarting the potential of OER to benefit those most in need of free resources). Inability to access and use the materials in digital form can stunt pedagogy by precluding – or at least making much more difficult – the adaptation of materials to meet particular needs in particular contexts. This limits opportunity for teacher-learners to exercise their agency in fully developing their professional skills as much as it undermines one of the most powerful assets of the concept of OER.

5 CONCLUSION

Our conclusion has two sections: Overall findings, and issues for consideration regarding the ‘way forward’. Because of their close connection, these have been kept together in the same section. Major findings are in textboxes, with supporting evidence or reasons alongside.

5.1 OVERALL EVALUATION FINDINGS

5.1.1 OVERVIEW OF FINDINGS IN RELATION TO EVALUATION QUESTIONS

5.1.1.1 PARTNER INSTITUTIONS’ ‘TAKE UP’ AND USE OF TESSA

With respect to the purpose and validity of evaluation findings, one notes that TESSA implementation has taken place in a suitably varied and representative range of partner universities. In each of these, TESSA was implemented after trialing and careful thought. Institutions conducted their own monitoring and research in order to assess benefits and to modify their plan for TESSA integration, if necessary.

TESSA ‘take up’

In terms of scale, there has been very considerable ‘take up’ of TESSA materials. In all partner institutions, TESSA has achieved almost 300 000 enrolments of teacher-learners and in-service teachers across a wide range of programmes.

The other striking feature of ‘take up’ is that TESSA has taken hold in different kinds of settings and contexts, in different models, and for different purposes.

TESSA has taken hold across and in:

- Different national policy contexts;
- Certificate, diploma, undergraduate degree programmes;³⁸
- Initial and In-service programmes;
- Courses preparing teacher-learners across all phases of schooling;
- All core content subject and curriculum areas;³⁹
- Contact and Distance modes of teaching;
- Programmes delivered by NGOs
- New programmes initiated by HEIs themselves or in response to government mandate.⁴⁰

³⁸and even masters’ programmes in two institutions

³⁹but also in Educational Studies and Professional Studies

⁴⁰ Respective examples are Egerton’s B.Ed and OUS’s mandate to ‘upgrade’ certificated teachers to B.Ed, by distance.

'Take up' need not be a lengthy process. UNISA joined TESSA 2007, and TESSA's place has been secured in its large, carefully structured distance B.Ed programme.

Greatest use of the TESSA resources has been in courses dealing with pedagogy and/ or methodology. In the case of institutions that are able to offer only general methodology, the materials have enabled the important gap of subject-specific methodology to be at least partially filled.

Apart from logistical issues – particularly in the form of difficulties experienced in accessing the OER - 'take up' has not been beset by noteworthy problems. The issue of sustainability, however, does raise questions. TESSA flourishes in the hearts and minds of teacher educators and their teacher-learners, and is certainly woven into the fabric of faculty practices. In contact teaching programmes, however, where TESSA has been integrated by an individual lecturer, sustainability is potentially threatened in the event of that lecturer not remaining in post, offering the same course. There is evidence that management in partner universities has been convinced of the merits of TESSA. But, by and large, TESSA is not formally inscribed in curricula or in faculty statutes or guidelines. By contrast with contact teaching programmes, TESSA's security of tenure appears to be assured in the distance programmes (which also account for the great majority of students). In these programmes, the integration of TESSA into existing curricula in ways that maintain and enhance programme design has involved much staff collaboration in carefully planned and structured processes. The lifeblood of a distance education programme is its own printed learning materials or manuals. When integrated there, TESSA's continuity is assured for some time. At UNISA, detailed plans to institutionalize TESSA are well advanced. In other cases, institutions have found that the TESSA OER have greatly reduced the time in which new distance programmes – bringing in significant numbers of new enrolments – have been mounted.

5.1.1.2 THE INFLUENCE OF TESSA ON TEACHER EDUCATORS AND TEACHER-LEARNERS (IDENTITY AND PRACTICES) AT PARTNER INSTITUTIONS

Questionnaire data show that teacher educators encountered TESSA in different ways because of their own past experiences as well as their own different locations across the disciplinary / subject areas comprising teacher education. For some, TESSA was something completely new. Typical expressions of TESSA impact in such cases were "an eye opener" or even "a revelation". In the case of those already familiar with the theory and practice of learner-centred, activity-based methods, TESSA reinforced or cemented their existing philosophies. It also provided the means of achieving their ideals.

Teacher-learners are paired with teacher educators in the following conclusion because of their similarity of TESSA-related experience, particularly in classrooms. If anything, as the 'end users' their allegiance to TESSA was more passionate than that of their lecturers.

TESSA Impact

Interaction with, and use of, TESSA OER has had a *significant* impact on the identity and practices of teacher educators and a *profound* impact on those of teacher-learners. It has fused theory and practice; shifted perceptions from teacher as “know it all” to “teacher as facilitator of learning”; and greatly enhanced the relevance of pupils’ learning experiences. The materials have been used in creative ways to meet the real needs of teachers and learners. Actual use of the materials has by and large represented forms of practice that correspond with best professional practices as described by leading education theorists. All of this justifies the TESSA strategy of improving the quality of teaching through more purposeful – and OER supported - forms of teacher education.

Reasons for impact: TESSA foregrounds and provides the resources and tools for activity-based learning. It provides the equipment for teacher practice. It does not begin by providing abstract ‘theory’ and thereby alienating practitioners by placing the onus on them to find their own ways of enacting theory. Yet by simply using the user-friendly TESSA tools and resources, practitioners are inducted, naturally and almost by default, into best professional practice. TESSA makes child-centred, activity-based and reflective practice real, and achievable. In this way TESSA has done much more than simply provide materials that are sufficiently generic to be useful in almost any context. Use of the materials leads practitioners into exercising their own agency in making the crucial decisions on which good practice depends: selecting, organizing and sequencing the materials in ways that are not only in line with national policy, but importantly also consistent with the contexts in which they practice. In notable cases this has led to adaptation of the materials to ‘*these*’ children; in ‘*this*’ classroom; and in ‘*this*’ context, with its own unique permutations of promise, opportunity and constraint.

As most reports on initiatives aimed at teacher development and improved practice are almost invariably depressing, it should be noted that the above conclusion is drawn within the normal, acknowledged possible limitations arising from ‘self report’. However, our conclusion is emboldened by triangulation of evidence captured through questionnaires and interviews, as well as institutional case studies and other published research and conference papers. Because of this, we present our findings on TESSA impact on teacher educators and teacher-learners with confidence.

5.1.1.3 TESSA NETWORKS

‘Networking’ was conceptualised as a powerful means of developing and embedding the project and its resources in partner HEIs and in supporting school-based modes of teacher education. The TESSA network has grown far beyond the original TESSA consortium partner institutions.

The diversity and complexity of TESSA networks that have been established between and among TESSA Coordinators/partner institutions and other actors, authorities and initiatives in teacher education and development, reflect not only a legitimate challenge to the traditional model of approaching education reform initiatives from the centre (seat of bureaucracy) to the periphery (grassroots), but also provide a good case study on how to cascade education reform initiatives from the 'bottom' to the 'top' (from the grassroots to the centre). Through TESSA networks, partner universities and teacher training colleges are slowly but steadily taking education reform (policy in some cases, and practice in most cases) to Ministries of Education.

Some effects of networking (beneficial unintended consequences)

- Some faculties (e.g. Egerton, UEW, Makerere) now work closely with schools, for the first time.
- Research has been fused into teaching (e.g. Dean at Egerton).
- Acceptance of the principle of activity-based materials for external programmes, e.g. Makerere, influencing "how teaching is carried out in Makerere itself" Aguti (2011: 3).
- VSO (Ghana) is using TESSA materials for the training of school inspectors, head teachers, professional teachers, and unqualified and volunteer teachers.
- Colleges of education have been influenced: OLA presents a case of exemplary TESSA practice.
- Through UEW, TESSA has helped inform the national ECD curriculum in Ghana.
- TESSA has been approved by the Teacher Education Division of the Ghana Education Service.
- Vibrant communities of teacher education practice have emerged.

5.1.1.4 THE ROLE OF ICT IN ENABLING / CONSTRAINING TESSA

ICT capacities and capabilities have worked to both enable and constrain aspects of TESSA implementation. Where steady, flexible and affordable access to ICTs is enabled, TESSA OER uptake and use is high. However, in most of the cases, the predominant use of print and CD modes of access to TESSA OER has largely constrained both access and adaptability, and could therefore undermine anticipated gains in pedagogy.

Consequences of (non) availability of ICT

- Lack of infrastructure makes access to the materials more difficult and expensive (thus thwarting the potential of OER to benefit those most in need of free resources).
- Inability to access and use the materials in digital form can limit pedagogy to *adoption* of materials rather than *adaptation* to meet particular needs in particular contexts. This limits opportunity for teacher-learners to exercise their agency in fully developing their professional skills.

All data sources (Coordinators' case study reports, Interviews, Questionnaires) refer to the difficulty of accessing TESSA materials as the foremost obstacle to TESSA 'take up' and use in different settings. The fact that the project has achieved as much as it has despite lack of necessary ICT infrastructure is testimony to the resonance of the model with practitioners.

5.1.2 AN OVERALL JUDGEMENT ON TESSA IMPACT

TESSA is a pioneering project in that it has tackled, head on, the most intractable of all challenges facing teacher education and schooling in SSA – quality. It has been innovative in merging educational theory and modern technologies into a model that is also strategically pragmatic, and thus workable.

TESSA is a highly successful project, achieving its aims at scale. This has immense implications and promise for all teacher education in SSA.

Indicators of project success:

- Significant project 'take up' in diverse settings;
- Significant impact on the practices and identities of teacher educators and teacher-learners;
- Significant impact, through networking, on schooling and other educational agencies. Some impact on ministries of education is evident.

Success has been achieved despite:

- Limited ICT infrastructure and expertise.

5.1.3 AN EXPLANATION FOR IMPACT

We should go back to first principles about why development is initiated: development activities are meant to improve conditions in a community or in a society. It is therefore most important to think about the success, not in project terms, but in how change happens in society (Garden, 2010: 4).

What, then, makes TESSA so uniquely appropriate and resilient across different contexts?

5.1.3.1 FROM THE PROJECT SIDE: LOGIC OF CHANGE

Project logic, developed by the Open University over a number of years and projects, is that interventions should start at the point of maximum impact.

Implementation is thus seen as a dispersed and decentralized process with discretionary activity occurring primarily within identified programmes and courses of partner institutions (Wolfenden, n.d. :2).

TESSA OER were written in accordance with a template that promoted activity-based teaching methods and adaptability to national contexts and local needs. No such rigid template was imposed in implementation, however, other than the logic of institutional autonomy and choice. The project promoted agency and the development of resources and support for partners to

enact that agency. As we have seen, institutions and individual teacher educators have employed the OER in ways best suited to their contexts, cultures and professional needs.

As a result, through networking, the project has also impacted on broader education communities and ministries. As in the real world, the project has shown that progress does not always follow the best-laid plans no matter how rational, and that things do not always move forward in a neat, linear way. One example of this was provided during the UEW site visit. At precisely the time UEW was ruing the fact that no headway was being made with the ministry, because it was too cumbersome, a UNESCO conference was taking place in Paris:

In his keynote speech, the Hon. Mr. Lee Ocran, the Minister of Education in Ghana, explained how Ghana has integrated OERs in its education system, and made a comprehensive declension of the different ways TESSA is used in Ghana.⁴¹

5.1.3.2 FROM THE INSTITUTIONAL SIDE: DEMAND, AND OPPORTUNITY TO RECRUIT RESOURCES IN LINE WITH PROFESSIONAL NEEDS

At a relatively technical level, it has been shown that TESSA resources have filled important curriculum needs, especially in regard to providing a basis for subject methodology. However, subject knowledge in the more developed form of pedagogic content knowledge (PCK) also has a link with context and culture. The ways we communicate our ideas and thoughts in our everyday classroom activities are *disciplinarily* and *culturally* situated (Kanuka, 2006).

If TESSA OER had been used for *content* purposes alone there would arguably have been far less impact than if used as a *methodology* – for which purpose the OER have indeed been mainly recruited. Teachers certainly have subject identities but they have limited scope for control over content (apart from ‘versioning’ which TESSA allows for). By contrast, in matters of pedagogy, educators have a great deal of scope. Pedagogy has the potential to transform social relationships between teachers and pupils and between teachers and fellow teachers. It is pedagogic identity that provides the impulse for personal investment in teaching and the sense of agency to become a self-directed professional. Two examples illustrate how TESSA has influenced personal sense of pedagogical possibilities:

- Changes that had come about in pedagogy were “... often related to practices and techniques which the teachers were familiar with at a theoretical level but had rarely used in their own practice, such as the use of open questions ...” (Abreh, 2011: 8).
- A lecturer at Egerton, doing PhD research into secondary school science methods, came across TESSA on the Internet and found that it turned abstract theory into something concrete and real. She noted that: “These ideas have been around – TESSA shows how they can be actualized and put into practice.”

The project has shown that improving quality involves more than simply providing content and resources – it’s about changing the way teachers understand good teaching, and how new approaches become their preferred approach. In this way, TESSA exemplifies the reality that reflective teaching is “learnable, coachable, but not teachable” (Schön, 1988:158).

⁴¹Michèle Deane, 23 June 2012. UNESCO OER World Congress, Paris, 20-22 June 2012, Congress report.

One well-researched key reason why educational innovation takes hold in only a fraction of institutions concludes that:

The problem ... lies not in the supply of new ideas, but in the demand for them. That is, the primary problem of scale is understanding the conditions under which people working in schools seek new knowledge and actively use it to change the fundamental processes of schooling (Elmore, 1999: 256).

In the case of TESSA, the project has provided the ideas and resources; teacher educators in partner universities have demonstrated the demand for these ideas and resources.

5.2 ISSUES FOR TAKING THE PROJECT FORWARD

Perhaps the most positive - and memorable - of the many expressions of confidence in TESSA voiced by teacher educators was: "TESSA will spread its wings." In conclusion, we highlight a number of issues that have potential to inform thinking about the future trajectory of the project in ways that might indeed add power to its wings. Readers familiar with the project - and particularly Coordinators and teacher educators in partner institutions - will undoubtedly strengthen and add to our list.

The following points are not sequenced in order of importance or priority.

Retain and build on project logic and research networks

We begin with project assets that should be retained and further developed. Evaluation findings strongly endorse the appropriateness and effectiveness of project logic, the TESSA model itself, and the strategies of implementation that have led to its success.

Within this firm foundation for establishing and consolidating TESSA activity, there is research. TESSA originally introduced the idea of 'versioning' and trialing the materials, and with project support, institutions began their own monitoring of the impact of the materials. This has generated research that has been of much value in guiding TESSA integration (and it has also served the present evaluation admirably). The TESSA research network is one aspect of the project that several teacher educators expressed great interest in joining. Cementing the research culture at faculty level and extending inter-partner research networking would thus seem to offer benefits to all stakeholders. It would also make project participation more attractive to teacher educators, who, as members of the university community, are expected to be productive researchers as well as good teachers.

TESSA in relation to national policy

Fears of disjunction with national policy occur mainly where TESSA is understood as content rather than as methodology (the chief way in which it is actually used). For instance, where some resistance on the part of a Ministry of Education was cited, it was on the basis that the materials/activities were "not in the curriculum" or "the resources were not among the approved books" rather than that the teaching methodology was contrary to policy. But even then, as we have seen, such resistance was minimal, and gradually overcome. Nonetheless, this is not to say that policy affirmation is not important in some contexts, and it is often very important in the perspectives of those closest to grassroots. Even if an objective view of policy suggests that anxieties about TESSA's compliance with policy compliance are not well founded, perceptions are real in their consequences (Thomas, 1929). There could be merit in the project

using its experience to identify strategies that help allay anxieties about TESSA's compliance with national policy.

The role of Project Coordinator

Project planning placed heavy reliance on Coordinators. That confidence has been justified, and Coordinators must indeed take the lion's share of credit for project 'take up'. It is clearly a mutually beneficial arrangement. In the case study reports, Coordinators at eight partner universities⁴² made specific mention of personal and professional benefits that accrued as a result of their role.

Of the many issues that could be raised in regard to the critical role of Coordinator, two extremes stand out. First, there is the obvious fragility associated with reliance on any one individual. A tragic example is the untimely death of the former Coordinator at the University of Pretoria. Succession issues can lead to project setbacks, and the evaluation encountered a number of these. They carry the danger of loss of networks as well as of 'institutional memory'. Second, there is the very different dynamic that occurs when a Coordinator occupies the role for a long period of time. While the benefits of such a situation are obvious – and were also amply demonstrated during the evaluation – the individual becomes the 'face' of the project to the extent that s/he is seen *as* TESSA, or as the TESSA 'brand'. Should TESSA be seen as a brand? After all, it is a package of accepted theory and best practices – it is not a new theory or paradigm vying for acceptance.

TESSA as part of a fully coherent teacher education programme

Linked to above, as well as to the comments of a number of teacher educators, is the fact that methodology is but one element within course design. A weakness in some instances of TESSA 'take up' might be that it has operated in isolation of important components like professional studies and educational studies. The evaluation noted that some teacher-learners in programmes in which TESSA had been fully integrated were those who made links between theory (e.g. Dewey, Piaget, Vygotsky) and practice. Evaluation interviews with teacher educators did not yield the same insights (although this is of course not to say that academics had not made the connection). However the point is that theory and practice should be linked at the level of course design if the curriculum is to have optimal coherence and impact.

TESSA is rooted in respected theoretical traditions, and is best not viewed as a separate – or worse, competing – 'brand' as an organizing principle for curriculum development. Thought could be given to ways of inserting TESSA *within* rather than *alongside* the rationale or philosophies that underpin programme design. When this is achieved, teacher-learners can truly say, as one Kenyan teacher did: "TESSA is in me."

TESSA and institutional type

Universities have been characterized (perhaps rather unfairly) as the most change-resistant institutions that have existed. Certainly, the present evaluation has identified weak formal or statutory embedding of TESSA as a potential threat to sustainability in partner institutions. TESSA appeared to be strongly embedded only in the distance education components of

⁴² Egerton, KIE, Kyambogo, NTI, OUT, UCC, UFH, UNISA

universities, simply for the reason that learning materials to support distance education have to be carefully planned and structured by teams of academics. In this sense, within universities, distance education programmes offer the most promise of being good hosts for TESSA.

As institutional types, however, Colleges of Education present themselves as promising sites for TESSA extension. While there is always the danger of over-generalizing on the basis of a single case, OLA College – although ironically not a partner institution – was found to be the institution in which TESSA was most deeply embedded. Several reasons can be suggested for this. With a TESSA-supportive College Principal, it has vertical lines of authority; and its single qualification makes implementation and coherence across subject areas easier to achieve. Because of this thorough integration of TESSA into OLA, as an organization, OER are being used in ways that encourage advanced professionalism. With the TESSA website as the epicentre, students are supported in selecting and adapting resources to suit the contexts in which they practice.

Through a number of partner institutions that have a mandate to oversee the colleges, the project already has a powerful foothold in these institutions.

ICT infrastructure

Problems in this regard emerged very clearly in the evaluation. By and large, the problem of lack of ICT infrastructure is beyond the control of the project. Nonetheless, *awareness* and *accessibility* remain two key factors that influence and even determine the uptake and utilization of TESSA OER. Awareness relates to getting information about availability of and possibilities presented by TESSA OER. However, this study has shown that accessibility is not just about ensuring availability of ICT facilities and appropriate Internet connectivity, but also ensuring OER-user capabilities (ICT skills, competencies and values). Accordingly, future TESSA activities could yield significantly greater impact if they simultaneously target awareness and accessibility, including training; and if they are informed by a comprehensive needs analysis that embraces resources and critical skills for their effective use. Greater use of intranet and off-line access, may, for example be effective in some institutions.

TESSA and (teaching) practice

Finally, we come to the point where TESSA begins: Practice. Appropriately, the most common form of assessment across partner institutions is related to the practices of teaching. In some, assessment is based entirely on the student's performance in the classroom. How such assessment might be conceptualized and carried out is a matter of key importance. In Nigeria, the NTI has already embarked on such an initiative. There could be much merit in further encouragement for the development of protocols for assessing teaching practice, particularly if it were a collaborative effort across networks that have evolved in the TESSA community.

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APPENDIX A: INTERVIEWEES

Open University, 16-18 May 2012

Professor Bob Moon (Emeritus Professor; Founding Director of TESSA 2004-2008)

Professor Frank Banks (Director: International Teacher Education).

Freda Wolfenden (Associate Dean, Curriculum, Qualifications and Scholarship; TESSA Director 2008 - 2012)

Michele Dean (Former Director PGCE, Responsable du volet francophone de TESSA)

Alison Buckler (TESSA PhD Student / Research Assistant)

Dr Jane Cullen (Director, TESSA 2012)

Egerton, 19-22 June 2012

Egerton Management and Academic Staff

Professor Rose A. Mwonya (DVC Academic Affairs)

Professor S. F. O. Owido (Registrar: Academic Affairs)

Professor Fred Keraro (TESSA Coordinator)

Dr Joseph Wamutitu (Teacher Educator)

Professor Samuel Wachanga (Dean: Faculty of Education and Community Studies)

Dr Patricia Wambugu (Teacher Educator)

Teacher Focus Group 1 (with 2 exceptions, all Egerton graduates)

Viola Cheboi (Legetetwet Primary)

John Guchuhi (Kikapu Primary)

Kamotho Simon (Michinda Primary)

Anson Waithaka (St Peters School)

Bowten James (Gichoro Primary)

Ednah Chirchir (Korongo Primary)

Monica Ndonga (Karima Primary)

Florence Karuda (Egerton Primary)

Teacher Focus Group 2 (All Egerton graduates)

Daniel Kariuki (Egerton Primary)

Anne Njoroge (Mama Ngina Primary)

Pauline Koky (TAC tutor)

Margaret Wandia (Tazaku Primary)

Sarah Karanja (Kariba Roaa Primary)

Njoroge Joseph (Naivasha Boarding School)

Patterson Kiriro (Kikapu Primary)

Schools using TESSA

Mr Anson Waithaka (Deputy Principal, St Peters School, Elburgor)
Ms Pauline Koky (TACT tutor)
Mrs Florence Kimani (Head Teacher, Egerton Primary School)
Mr Daniel Kariuki (Deputy Head Teacher, Egerton Primary School)

Coordinators from project partner universities

Dr Osman Elseed Ali (OUS)
Dr Cornelia Muganda (OUT)
Ms Doris Kaije (Kyambogo University)
Mr Samuel Siminyu (Makerere University)
Professor Fred Keraro (Egerton University)
Dr Faustin Habineza (Kigali Institute of Education) (*telephonic interview*)

University of Education, Winneba, 25-28 June 2012**Coordinators from project partner universities**

Dr Salome Praise Otami (UEW)
Professor Sally Essuman (UEW)
Dr Might Kyo Abrea (UCC)
Dr Dele Yaya (NTI)
Dr Kwame Asare (UCC)
Professor Jophus Anamuah-Mensah (TESSA Executive Chair)

UEW Academic Staff

Wilson Kofi Abeke (ECCD)
Dr Ernest Ngman-Wara (Basic Education)
Sakina Acquah (Basic Education)

Current ECCD Students at UEW

John Listowel Abayateye
Seth Sunu
David Amedzro
Adu Maxwell
Christiana Arhinful
Teachers using TESSA in schools in Winneba
John Hammond (Municipal Assembly Junior High School)
Magdaline Tuuli (Donbasco Boys' Primary School)

OLA College of Education, 26 June 2012

Focus Group Interview: 9 Current OLA Students (2nd year : 4; 3rd year: 5)

Augustina Dadzie
Linda Keelson
Felicia A. Yamonu
Lydia Dadzie
Sharon Ofna Eyison
Anita Parker
Hawa Abu Osman
Afia Dokua Adu
Hilda Annan

Focus Group Interview: 4 OLA Graduates

Lebene Nkpeh
Augustina Efua Quaye
Rosemund Sam
Yeboah Charles

Focus Group Interviews: 9 OLA Tutors

Victor King Anyanful (Assistant Coordinator)
Stephen Owusi-Ansah (Visual Art)
Sebastian Atta-Fynn (Social Studies)
Dennis Nana Akomea (ICT)
Gladys Edjah (Literacy)
Francis Adu-Sarkodie (Head, Maths & ICT)
Justine Awudetsey (Numeracy)
Nyameyie Sam (Coordinator)
Samuel Crankson (Mathematics)

University of Fort Hare, 23-25 July 2012

Management and academic staff

Prof. Xoliswa Mtose (Executive Dean, Faculty of Education)
Prof. George Moyo (Deputy Dean, Faculty of Education)
Dr. Greta Galloway (Head of School, School of General and Continuing Education)
Dr. Namhla Sotuku (Coordinator, TESSA)
Mr. Peter Shaw (Lecturer)
Ms Mary Ann Hood (Lecturer)

Coordinators

Dr. Joseph Ng'andu (University of Zambia)

Dr. Mncedisi Maphalala (UNISA)

Dr. Namhla Sotuku (University of Fort Hare)

Teacher Using TESSA in School

Mr. Zukile Mashologu (President Primary School, East London) *(telephonic interview)*