

Theme: Innovation in curriculum and assessment

Title: The African Virtual University Teacher Education Program: Across borders and language barriers in 10 African countries

B. Diallo, African Virtual University bdiallo@avu.org , K. Thierry, University of Montreal. thierry.karsenti@umontreal.ca ; J.N. Aguti, Makerere University aguti@iace.mak.ac.ug ; C. Villet, University of Namibia cvillet@unam.na and C. Wangeci Thuo, African Virtual University. cwangeci@avu.org

ABSTRACT

As part of its strategic responses to the challenges facing the teaching profession in Africa, the African Virtual University (AVU) has initiated a continent-wide teacher education and training program which focuses on increasing the quantity and quality of Mathematics and Science teachers through the use of Information and Communication Technologies (ICTs) both in and across the curriculum. The goal of the program is to enhance the capacity of teachers in the use of ICTs in teaching and learning Mathematics and Science; increase the number of qualified and effective Mathematics and Science teachers; and develop the capacity of teachers to teach ICTs as a discipline.

This program is being funded by the African Development Bank (AfDB) and the United Nations Development Program (UNDP). Since 2005 when the project was launched, a total of 54 modules have been developed for Biology, Chemistry, Physics, Mathematics, Basic ICT Skills and the Pedagogy and Practice of Integrating ICTs into Science and Mathematics. These materials have been developed collaboratively with Subject Matter Experts from 10 countries (Ethiopia, Kenya, Madagascar, Mozambique, Senegal, Somalia, Tanzania, Uganda, Zambia and Zimbabwe) that are participating in the project. The materials development phase is nearly over and plans have been proposed for the actual utilization of the materials developed and the Learning centres set. This is the first time that such a project, involving a total of 160 subject matter experts from 12 universities in 10 countries, has been run to this scale in Sub Saharan Africa and there are a number of lessons that have been learnt along the way.

To share these lessons and to invite the conference participants to contribute to the discussion and specifically input into the implementation plans, the AVU hopes to run a workshop which would involve the presentation of three short papers covering the description of the project, lessons from the materials development process and plans and prospects for implementation. These short presentations will then be followed by group work activities around specific questions. The information gathered from this workshop will be utilized in finalizing the implementation plans and for the subsequent research agenda during this phase.

1.1 DESCRIPTION OF THE PROJECT

Funded by the AfDB and partly by the UNDP, the sector objective of the project is to contribute to increased access to quality education in Ethiopia, Kenya, Madagascar, Mozambique, Senegal, Somalia, Tanzania, Uganda, Zambia and Zimbabwe; while fostering regional integration. The project's underlying objective is to strengthen the capacity of the AVU and its network of African Institutions to deliver and manage quality ICT assisted education and training opportunities in the above selected African countries.

The project was scheduled to be implemented over a period of three years, and has the following components: (i) Establishment and strengthening of Learning Centres and Connectivity Provision at existing campuses of the AVU Partner Institutions; (ii) Teacher Training and Development Program; (iii) Mainstreaming Gender Issues into AVU's Operations; and (iv) Project Management.

The Teacher Education Programme aims at enhancing the capacity of teachers in the use of ICTs in teaching and learning mathematics and science and developing their capacity to teach ICTs as a subject in secondary schools. The program has a dual capacity enhancement purpose. First, is to enhance the Capacity of teachers in the use of ICT in teaching and learning Mathematics and Science. Second, is to develop the capacity of teachers to deliver ICT Education. The specific objectives are:

- To enhance the capacity of teachers in the use of ICTs in teaching and learning, with a particular focus on Mathematics and Science.
- To develop the capacity of teachers to deliver ICT education – teaching ICT skills as a subject to primary/secondary school pupils.
- To increase the number of Mathematics and Science teachers by expanding access to training through the ODeL initiative.

The broad activities of the Teacher Education Program include:

- Preparing the teacher education program
- Authoring of content for ICT courses
- Re-authoring of existing maths and science courses into ODeL compliant learning materials
- Development of quality assurance frameworks
- Program coordination and delivery in target countries
- Selection and training of course leaders/program coordinators
- Start of admission and handover of the program to African Universities

2.0 CURRICULUM AND POLICY CONTEXTUALISATION

Any collaboration ought to have clearly articulated guidelines to avoid confusion and possible conflicts. Since the Teacher Education Programme is involving a cross section of countries with different curricula and using different languages for instruction, it was vital to agree on how the entire programme was going to be run. This included agreeing on the different roles and responsibilities.

Two workshops were therefore conducted in May and November 2005 so as to determine the modus operandi for the curriculum design process and the ultimate implementation of the programme. One of the major results of this workshop was the agreement to establish an Advisory Council (which is a forum of Deputy Vice Chancellors/Rectors of the participating institutions) to oversee the activities and to provide counsel on the implementation of the programme. The other major agreement was that all participating institutions would send in subject matter experts to act as authors and/or peer reviewers. In this way, it was believed that ownership and acceptability of the curricula and modules produced would be achieved.

3.0 DEVELOPMENT OF CURRICULA AND A QUALITY ASSURANCE FRAMEWORK

The Teacher Education programme was designed on the assumption that the study materials developed would be based on a negotiated curriculum. So to achieve maximum benefits and acceptability, the AVU adopted a collaborative approach to its implementation by inviting education stakeholders in the various countries to take part in the development and implementation phases of the programme.

To develop the curricula for Biology, Chemistry, Physics, Mathematics, Basic ICT Skills and Professional Studies the AVU worked with the Ministries of Education and Participating Institutions (PIs). Subject Matter Experts (SMEs) were identified by the partner institutions and these worked together to agree on the curricula. To ensure this, a series of different workshops were held involving Ministries of Education officials, Deans/Directors of Schools/Faculties of Education, Subject Matter Experts and consultants.

Workshops were held in October 2005, February 2006 to develop the curricula for Biology, Chemistry, Physics, Mathematics, Basic ICT Skills. These workshops brought together subject matter experts and after analysing the different institutional curricula, the experts agreed on subject curricula. One must be noted here is that two separate workshops, one for Anglophone and Lusophone and the other for the Francophone countries, were held to develop these curricula. The major reason for this

was that the two large language groups (Anglophone and Francophone) have separate school and teacher education systems and it was critical to achieve consensus between them before bringing the two 'worlds' together. However to get to this, the Anglophone and Lusophone countries met first, drafted the curricula and this draft was then passed on to the Francophone countries for adaptation/adoption and enrichment. The outcome was agreed curricula that were seen to represent common topics across the participating countries.

A slightly different strategy was adopted to develop the curriculum for the Professional Subjects. To do this, a consultant was hired to analyse the different curricula for professional subjects in all the participating countries. A structure for a common professional course curriculum was then proposed based on the analysis of the offerings at these nine PI's. This common structure was then deliberated upon at a three day workshop in held in December 2006 in Nairobi where all the PI's were represented and had major input into the proposed professional curriculum. The proposed common structure suggested five broad fields of study namely: Educational Foundations; Curriculum Studies and Instruction; Educational Psychology and Special Needs Education; Educational Administration and Planning; and Educational Research and Reflective Practice. This curriculum was then used to develop the modules for Professional courses.

3.1 Development of a Quality Assurance Framework for the programme

One of problems faced by the education system in Sub Saharan Africa is availability of high quality teachers. The AVU Teacher Education Programme therefore sought to address this as well through debates and discussions on provision of high quality Teacher Education. The Advisory Council saw this as a pertinent issue that required so the participating institutions agreed that a quality assurance framework is developed to enhance the capacity of the institutions to provide high quality courses and programmes. The AVU therefore contracted a consultant to work with institutions and draft a Quality Assurance Framework that institutions could adapt/adopt. This draft framework was discussed and adopted in April 2007 by the Teacher Education Advisory Council.

4.0 MATERIALS DEVELOPMENT PROCESS

The materials development process was a major component of the project because as earlier mentioned, modules developed in the ODeL format was one of the project output. To ensure quality of the learning materials, it was agreed that the major steps to be followed would include:

- The training of the authors to write for ODeL
- Use of a standard template for all the modules
- Drafting of the modules
- Involvement of consultants to support authors
- Peer review of the modules
- Participation of instructional designers, editors and graphic designers

This process was supported by the involvement of Subject Matter Experts, Subject Consultants with ICT skills, an Adviser and a Materials Development Coordinator who was responsible for the overall coordination of all the activities. To ensure a smooth movement along the process, deadlines were negotiated and agreed upon.

4.1 Training of authors

Writing for distance education requires additional skills even for any accomplished writer because these materials must be structured in a special way to cater for the needs of a distance learner. Also, writing on line courses demands additional competencies besides the general principles for writing for distance learners. This was achieved by running writers workshops. The first day of the workshop was dedicated to discussing the general principles of writing for distance learners and to discussing the module template. Thereafter, the authors worked in subject team and offered one another help. All this was moderated by a consultant conversant with writing for distance learners and with integration of ICTs into learning materials. While the materials development coordinator and academic advisor offered support to all the subject teams.

4.2 Drafting of the modules

This was done initially at the workshops and continued at individual levels. However all authors received support from the other authors, the Subject Consultant the Materials Development

Coordinator. This process was facilitated by sharing of files through a special website which was created for this very purpose.

4.3 Peer Review

The Teacher Education Programme was very keen on ensuring that the modules produced are of a high quality and so included peer review. The reviewers were, like the authors, drawn from the participating institutions. Each of these were given peer review guidelines, the agreed curriculum for the specific course and the draft module. With the guidance and support of the Subject Consultants, the authors then integrated the comments received.

4.5 Participation of instructional designers, editors and graphic designers

Whereas all the modules were developed according to an agreed module template, a lot was still undertaken by instructional designers, editors and graphic designers to ensure that the final modules were of high quality in outlook, design, graphics, multimedia and language. This last team was under the direct supervision of the Materials Development Coordinator.

The figure 1 represents the entire materials development process as earlier conceptualized while figure 2 represents the reporting and communication lines as agreed upon by the authors, the AVU and the Materials Development Coordinator.

Figure: Materials Development Process

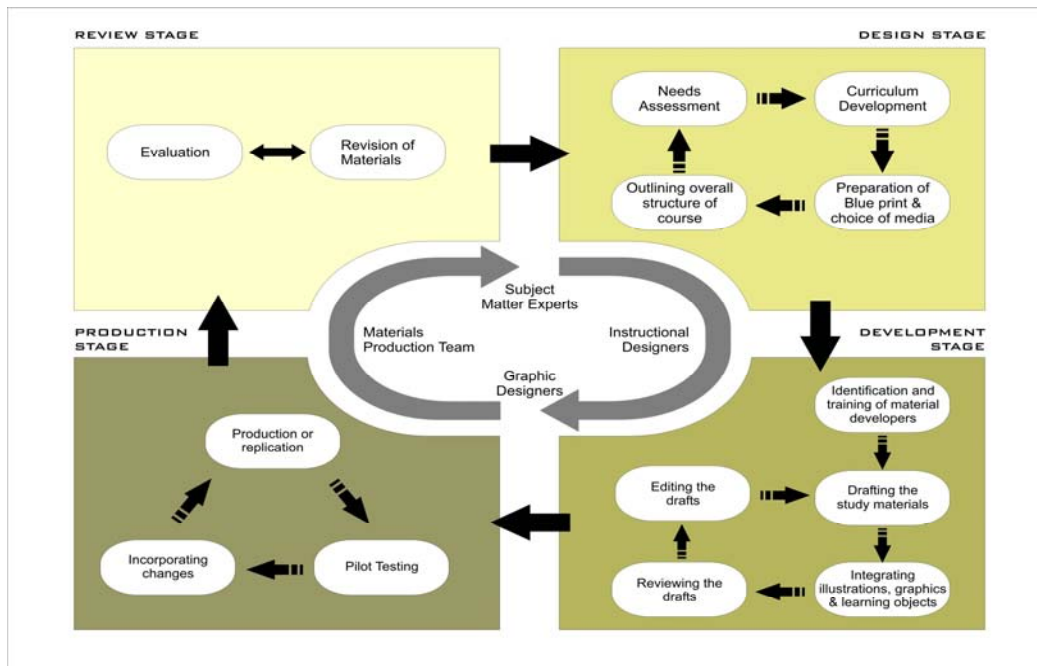
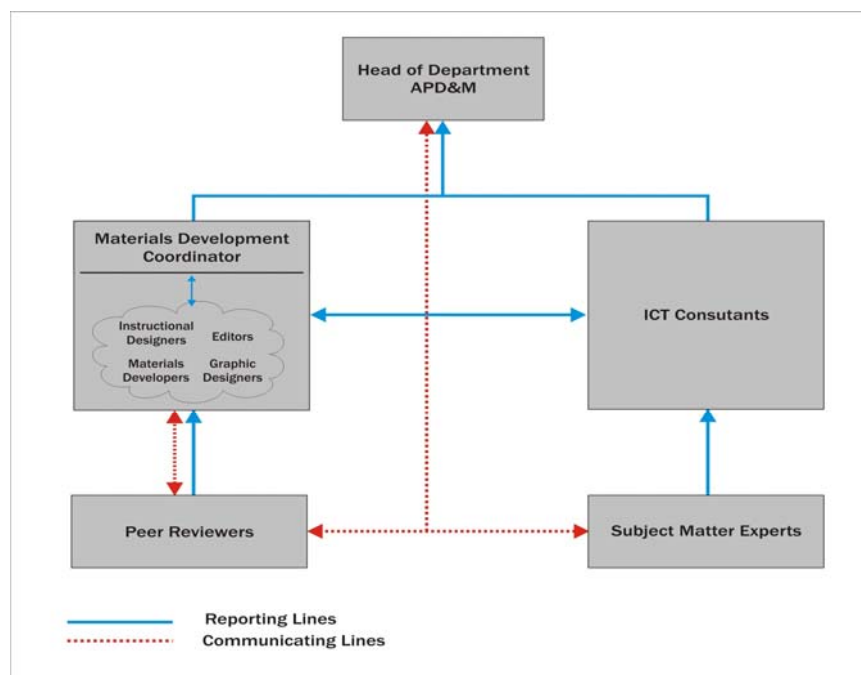


Figure 2: Reporting and Communication Lines between AVU and various consultants and experts



4.6 Challenges in the Materials Development Process

The materials development process has registered tremendous success and a total of 73 modules are been developed and of these, 29 are complete ready for use. However a number of challenges were experienced and some of these are highlighted here. These should be lessons for any other organisations/institutions wishing to engage in any other collaborative venture of similar magnitude.

Participant Readiness

The terms of reference for the authors and the consultants had indicated that both the consultants and the authors would be expected to spend some time preparing for the workshop. However this did not always take place and some of the authors therefore turned up without prior reading and preparation for the authors workshops. This often slowed down the process.

Language

The workshops drew participants from Francophone, Anglophone and Lusophone countries. Language was therefore to some degree a hindrance to communication and interaction particularly in the subject groups. For example, in Biology and Physics the working languages were French and English, but because the authors and the consultants were not bilingual, it was impossible to have interaction involving all the group members. The language barrier also limited interaction between the consultants and yet direct interaction between these two key persons would have enriched the authoring process greatly.

Variety in Ability

The authors and Consultants all had varied abilities, knowledge and skills. This is expected in any workshop that draws together a wide cross section of expertise. This variety can enrich a workshop although it can also pose some challenges. At these workshops, it indeed served both purposes. Variety in knowledge and skills was reflected in both the panel and group discussions where insights were shared that ultimately helped the whole group in achieving the objectives of the workshops. However in a few cases, the Subject Matter Experts chosen did not seem to demonstrate a high degree of competence in the subjects. To mitigate this, it was agreed that the Consultants offer the authors all the support required.

Deadlines

Adhering to deadlines is essential in the production of any learning materials, so for each of the writing phases, deadlines were set. Although a number of authors and reviewers did adhere to these deadlines, it was not always so but follow up and close monitoring of the activities helped ensure completion of the tasks.

5.0 PROGRAMME ACHIEVEMENTS

As at December 2007, this project had achieved 50% implementation and had achieved the following milestones:

- development of Policy Guidelines and Curriculum Conceptualization of the program;
- development of the curriculum for the program has been design;
- development of learning materials by re-authoring the already existing content into open distance and e-learning formats. This is an ongoing process under which 29 Phase I modules were completed by September 2007, 25 phase II modules are at peer review stage while the 19 phase III modules are at an advanced stage having commenced the authoring process in November 2007;
- the design, development and adoption of a quality assurance framework; the establishment of a consortium working structure that cuts across the three languages in the participating universities;
- the establishment of 73 subject matter teams and peer 73 reviewers for mathematics, ICT, biology, physics, chemistry and education professional courses;
- the training of subject matter experts; and
 - the establishment of a community of practice in Teacher Education who form a virtual network of academics working in different countries. The entire process has brought together a number of academicians who had to collaborate both during and outside the workshops. This is now a pool of expertise that can be tapped for other programmes and projects.
- Capacity building: Training of 73 authors in writing modules for distance learners. It is assumed that having been trained at the workshops and having participated in the development of the modules, the different authors have acquired skills they can transfer to other courses and with support to other academicians in their own institutions.
- Teacher Education Consortium: The participating universities have asked the AVU to form a Virtual consortium
- Regional integration and working across language barriers.

The Pending activities include:

- The ongoing process of the materials development;

- preparation for the commencement of a pilot phase;
- the translation of Modules into French, English and Portuguese depending on the authoring language for the module;
- Implementation of the Quality Assurance Framework in the PIs;
- Selection and training of course leaders;
- commencement of enrolments; and
- the handover of the program to the PIs

6.0 LESSONS

1. The perception has always been that the Anglophone, Lusophone and Francophone countries have very diverse education systems but actually on close examination these disparities are not so diverse as to prevent dialogue. Dialogue and consensus can actually be achieved as long as there is willingness to do so.
2. Collaborative ventures require commitment and goodwill from all the collaborating institutions. This project has demonstrated that Africa can speak to Africa and can overcome the differences in the education system and in the languages of instruction to achieve consensus.
3. The materials development process was an intensive process involving authors and consultants from 10 different countries across three languages. This was only possible because of commitment and dedication from all the participants. A collaborative venture of this nature can yield high quality learning materials and can lead to enhancement of capacities of all those involved. Nevertheless without tenacity the – modules that have been development would not have been developed.
4. Any collaborative venture demands clear guidelines for the modus operandi and demands close follow up and supervision of all the stakeholders.

6.0 QUESTIONS FOR GROUP ACTIVITIES

1. The AVU/AfDB/UNDP Teacher Education Programme is clearly a programme that has been developed based on collaboration and the modules developed are based on a hybrid curriculum collaboratively developed. What are the likely handicaps to the implementation of the programme in the different countries? For each of the anticipated challenges, identify strategies that can be adopted to mitigate these challenges.
2. The AVU hopes to migrate the modules developed to Open Education Resources (OERs). What should the AVU and the Participating Institutions do to ensure this is achieved?
3. Scan through one of the modules that have been developed through this programme. Identify three strengths and three weaknesses that you can identify. How can these modules be improved?
4. This programme is going to be piloted in 3 Institutions in 3 countries in SSA. Identify five issues that are likely to be central in the complete roll out that the AVU ought to look out for in the pilot phase.
5. The AVU hopes to extend this project to more countries during a second phase. What would you recommend to increase the impact of this programme?
6. What lessons can countries and institutions within and outside Africa can learn from this project?