Experience of the AVU in Developing OERs in Math and Science Teacher Education Collaboratively with 12 African Universities and 10 African Countries

DETA Conference
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Rector
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OUTLINE

• Introduction to AVU
• Collaborative Approach to Producing and using Math and Science content
• Online Interactive Portal OER@AVU
  http://oer.avu.org
• Looking into the future
• Conclusion
Introduction to AVU

- A Pan African Intergovernmental Organization
- Established by charter with the mandate of significantly increasing access to quality higher education and training through the innovative use of information communication technologies
- **Adopted ODeL in 2003**
- Established in 1997 as a project
- Acquired largest eLearning network in Africa - 53 partners in 27 countries
- Trained + 43,000
- Working beyond technological, language and cultural barriers in Francophone, Anglophone and Lusophone Africa
- Find more [http://www.avu.org/About-AVU/introduction.html](http://www.avu.org/About-AVU/introduction.html)

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Introduction to AVU

**AVU Video**

[www.youtube.com/watch?v=Gt-CLya0jzY](http://www.youtube.com/watch?v=Gt-CLya0jzY)

**Follow AVU**

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  - [www.facebook.com/pages/African-Virtual-University-AVU/296137566560](http://www.facebook.com/pages/African-Virtual-University-AVU/296137566560)
- **RSS Feed**
  - [http://www.avu.org/component/option,com_ninjarssyndicator/feed_id,1/format,raw/](http://www.avu.org/component/option,com_ninjarssyndicator/feed_id,1/format,raw/)
The AVU: Presence in Africa

AVU Teacher Education Project

- Started in 2005 as one component of a Multinational Project involving 10 countries
- Multinational Project:
  - Funding: African Development Bank, AVU and partly United Nations Development Program (Somalia)
- Project Components
  - Establishment of Open Distance eLearning Centers with internet connectivity
  - AVU capacity enhancement (ACEP)
  - An ICT integrated Teacher Education Program in Math and Sciences
  - Gender Mainstreaming
### Participating Institutions

<table>
<thead>
<tr>
<th>Country</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kenya</td>
<td>University of Nairobi</td>
</tr>
<tr>
<td>Uganda</td>
<td>Kyambogo University</td>
</tr>
<tr>
<td>Tanzania</td>
<td>Open University of Tanzania</td>
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<tr>
<td>Ethiopia</td>
<td>Jimma University</td>
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<tr>
<td>Mozambique</td>
<td>Universidade Pedagogica</td>
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<tr>
<td>Zambia</td>
<td>University of Zambia</td>
</tr>
<tr>
<td>Zimbabwe</td>
<td>University of Zimbabwe</td>
</tr>
<tr>
<td>Somalia</td>
<td>Amoud University, EAU, UoH</td>
</tr>
<tr>
<td>Madagascar</td>
<td>Université d’Antananarivo</td>
</tr>
<tr>
<td>Senegal</td>
<td>Université Cheikh Anta Diop (UCAD)</td>
</tr>
</tbody>
</table>

### AVU Teacher Education Project - Countries

- **Anglophone Sites**
- **Francophone Sites**
- **Lusophone Sites**

- Somalia
- Ethiopia
- Uganda
- Kenya
- Tanzania
- Mozambique
- Madagascar
- Zambia
- Zimbabwe

- Senegal
The Computers and Other Equipment UoN

The Open Distance & eLearning Centres

Universidade Pedagogica, Mozambique
Developing and Using OERs

- AVU An ICT-integrated Teacher Education program for Math and Sciences
- Objectives:
  - Improve the quality of teaching and learning in schools through use of ICTs
  - Increase the number of Mathematics, Science, and ICT basic skills teachers
  - Develop and promote research in teacher education to inform future curriculum reform
  - Establish and strengthen relevant partnerships with other teacher education initiatives in Africa

Developing and Using OERs

Methodology

- Formation of the Teacher Education Advisory Committee
- Policy and Curriculum Conceptualization for Teacher Education programs
- Curriculum Design
- Content Development
- Design and Development of a Quality Assurance Framework
- Establishment of Program Teams in the Participating Institutions
- Establishment of Teacher Education Virtual Consortium
- A Pilot Study of the Teacher Education Programs
- Launching the Math and Science TE Programs
- Publishing resources on OER@AVU
Developing and Using OERs

Achievements include

- Development of policies
- Conceptualization of the curriculum
- Quality Assurance Framework Document
- 219 modules of Math, Physics, Chemistry, Biology, Teacher Education foundation, ICT Basic Skills and ICT integration in Math and Sciences
- Modules structured as 4 Bed (Math, Phy, Che, Bio) and Diploma and Certificate programs
- Using Open resources to develop the content
- Released content as OER under the Creative Commons open licence

Achievements include (Continued...)

- Program coordination teams in each participating university
- Training of more than 459 academics
- Using Moodle as Online LMS Platform
- Establishment of a community of practice TE
- Testing program in 3 countries (Kenya, Somalia, Senegal)
- Launching the program in 10 countries
- Launching 2 AVU Certificate programs
- As of Jan 2011, some 4000 students enrolled in degree, certificate and professional development programs
AVU Certificates in ICT in Education

- **Joint certificate programs**
  - ICT basic skills
  - ICT integration on Education
- **Participating institutions**
  - University of Nairobi, Kenya
  - Open U. of Tanzania
  - Kyambogo University, Uganda
  - U. Zambia
  - University Cheikh Anta Diop Senegal
  - Putland State University, Somalia

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**Development Process: Negotiation or Dialogue?**

- **Country Curriculum**
  - Zimbabwe
  - Zambia
  - Senegal
  - Kenya
  - Madagascar
  - Somalia
  - Ethiopia
  - Mozambique
  - Uganda
  - Tanzania

- **Harmonized Curriculum**
  - Maths
  - Phys
  - Chem
  - Bio
  - ICTs

- **ODiLified Modules**

- **In-Country Programs**
Materials Development Process

Materials Development Process
• Most complex activity of the Teacher Education program
• The major steps in the process were:
  - 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
  - Involvement of a Materials Development Coordinator to oversee and coordinate the entire process
  - Involvement of an academic advisor

OER@AVU  http://oer.avu.org
AVU Conceptual Framework/Architecture

OER@AVU

- Flexible format
- Print
- CD/DVD/USB Keys
- Online
MyAVU Virtual Class  www.avu.org/virtualclass

OER@AVU  http://oer@avu.org
OER@AVU Portal

- Total Module viewed: 250,000 (July 2011)
- Total Countries and Territories worldwide: 141
- Total African countries: 42 out of 54
- OERs developed originally with 10 African countries
AVU OERs Views Worldwide Dec 10-June 2011

Statistics AVU OERs
Statistics AVU OERs

OER@AVU - 10 Top regions - April-June 2011

- South-Eastern Asia: 9%
- Western Africa: 5%
- Eastern Africa: 14%
- South America: 35%
- Northern Africa: 8%
- Southern Asia: 5%
- Southern Europe: 5%
- Northern America: 11%
- (not set): 3%
- (not set): 3%

Statistics AVU OERs

OER@AVU - 10 Top Countries Worldwide April-June 2011

- Brazil: 64%
- United States: 12%
- France: 9%
- Kenya: 6%
- Portugal: 5%
- India: 4%
- Morocco: 4%
- Philippines: 4%
- (not set): 4%
- Algeria: 4%
Statistics AVU OERs

OER@AVU Top 10 African Countries - April - June 2011

- South Africa: 5%
- Angola: 5%
- Kenya: 29%
- Morocco: 15%
- Tunisia: 6%
- Mozambique: 7%
- Tanzania: 7%
- Nigeria: 9%
- Algeria: 12%
- Senegal: 5%
- Nigeria: 5%
- Algeria: 12%

How were AVU OERs Developed?

Collaborative Approach to Producing and using OER

AVU Teacher Education Virtual Consortium – Concluding meeting Feb 2011- Nairobi Kenya
Lessons Learned

- The value of the collaborative strategy adopted
- working across three language divides, different education systems and different social political environments requires additional time and resources
- The social political environments in the different countries calls for a lot of flexibility

Lessons Learned

- It was possible to achieve regional integration through
- Collaboration strategy causes delays
- Translation of modules cause delay
- Convincing institutions and authors was not easy
- Need for motivation: initiative incentive for academics to get them involved
- Building a OER portal is challenging, search for qualified Human resources
- Publishing OER in 3 languages
- Funding OERs requires Institutional support
Looking Into the Future

• Where do we go from now?

Internet Users in Africa
March 31, 2011

Source: Internet World Stats - www.internetworldstats.com
18.609.620 estimated Internet users in Africa for 2011.01
Copyright © 2011, Miniwatts Marketing Group

Internet Usage Statistics for Africa

(AFrica Internet Usage and Population Stats)

INTERNET USERS AND POPULATION STATISTICS FOR AFRICA

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<tr>
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<tbody>
<tr>
<td>TOTAL FOR AFRICA</td>
<td>1,037,524,058</td>
<td>15.0 %</td>
<td>118,609,620</td>
<td>11.4 %</td>
<td>2,527.4 %</td>
<td>5.7 %</td>
</tr>
<tr>
<td>REST OF WORLD</td>
<td>5,902,531,096</td>
<td>85.5 %</td>
<td>3,072,396,385</td>
<td>33.5 %</td>
<td>454.4 %</td>
<td>94.5 %</td>
</tr>
<tr>
<td>WORLD TOTAL</td>
<td>6,930,055,154</td>
<td>100.0 %</td>
<td>2,095,006,005</td>
<td>30.2 %</td>
<td>488.4 %</td>
<td>100.0 %</td>
</tr>
</tbody>
</table>

• in Africa (56%) mobile internet users don’t use a PC.

Sources http://www.google.co.uk/intl/en/landing/internetstats/ on June 17th 2011

• Social sharing now produces an estimated 10% of all web traffic and 31% of referral traffic to sites from search engines and social networks

Looking Into the Future

• OER is key area for AVU

• OER@AVU: Africa Contributing to global knowledge - NOT only consumer of OERs

• Quality consortium programs released as OERs: a solution for AVU network

• Inviting more African Institutions and countries to use the AVU OERs

Thank You

www.avu.org