Turkish Online Journal of Distance Education-TOJDE July 2006 ISSN 1302-6488 Volume: 7 Number: 4 Article: 13

# Virtual Universities for African and Arab Countries

**Dr. Wolfram LAASER**
**Akademischer Direktor**
**FernUniversität in Hagen/ZFE,**
**GERMANY**

## ABSTRACT

**Internet development in Africa is constrained by poor telephone infrastructure, low international bandwidth and high dials up tariffs levied on internet users. This means in Africa we find actually app. 1% of worldwide internet users whereas population share of world population may be around 13%. Nearly half of the internet users are concentrated in South Africa. Another one percent of world users is located in the Middle East.**

**Therefore it is understandable that Africa and the Arab world are latecomers in developing net based educational systems. However today donor organizations put strong emphasis on creating Virtual Campuses for African States (EC, Word Bank) and Mediterranean countries or plan to incorporate selected African States to other institutional arrangements (Commonwealth of Nations, UNESCO).**

**In what follows we will discuss five of these projects differing in scope, structure and funding namely the Virtual African University, the Avicenna Project, the Virtual Arab University, the Syrian Open University and the proposal for a Virtual University for the Small States. From the analysis of the respective projects some tentative conclusions will be derived.**

**Keywords: Developing Countries; e-learning; virtual universities; distance education.**

## OVERVIEW

**Internet development in Africa is constrained by poor telephone infrastructure, low international bandwidth and high dials up tariffs levied on internet users. This means in Africa we find actually app. 1% of worldwide internet users whereas population share of world population may be around 13 %. Nearly half of the internet users are concentrated in South Africa. Another one percent of world users is located in the Middle East.**

**Therefore it is understandable that Africa and the Arab world are latecomers in developing net based educational systems. However today donor organizations put strong emphasis on creating Virtual Campuses for African States (EC, Word Bank) and Mediterranean countries or plan to incorporate selected African States to other institutional arrangements (Commonwealth of Nations, UNESCO).**

**In what follows we will discuss five of these projects differing in scope, structure and funding namely the Virtual African University, the Avicenna Project, the Virtual Arab University, the Syrian Open University and the proposal for a Virtual University for the Small States.**

**From the analysis of the respective projects some tentative conclusions will be derived.**

## INTERNET ACCESS

**Access to internet is mostly in major cities, sidelining the 70 % of Africans who are rural dwellers. Furthermore import taxes on hardware and state monopolies in telecommunication kept prices of internet access high. According to Anne Elliot cost of internet accounts in Africa are much higher than in the US (Anne Elliot, 2000).**

**To these obstacles lack of IT expertise is added and this is also a reason why frequently computers are not repaired and sit unused. The art of estimating how many are online throughout the world is an inexact one at best. Surveys abound, using all sorts of measurement parameters. However, from observing many of the published surveys over the last two years, here is an "educated guess" as to how many are online worldwide as of September 2002 and the number is 605.60 million.**

| | |
|---|---|
| World Total | 605.60 Million |
| Africa | 6.31 Million |
| Asia/Pacific | 187.24 Million |
| Europe | 190.91 Million |
| Middle East | 5.12 Million |
| Canada & USA | 182.67 Million |
| Latin America | 33.35 Million |

**Compiled by: Nua Internet Surveys**

**This means in Africa we find actually app. 1% of worldwide internet users whereas population share of world population may be around 13 %. Nearly half of the internet users are located in South Africa. However in some regions internet access figures are increasing at a high pace, e.g. Morocco where access doubled nearly in less than one year.**

**According to the research company, the United Arab Emirates (UAE) has the highest Internet penetration rate in the Arab world with 27.69 percent of the population having access to the Net. Bahrain has the second highest penetration rate in the region with 22.06 percent (To compare with Israel according to market research from Teleconomy, the Internet penetration rate will rise above 37 percent by the end of 2002).**

**By the end of 2005, Egypt reached the highest number of Internet users in the Arab region with 6.5 million Net users. Saudi Arabia will have the second highest number of Internet users in the Arab world with 4.48 million users, while Algeria will have 2.4 million.**

**However, while most Arab nations are expected to see significant rises in their online populations, Syria, Iraq, Yemen and Sudan will continue to trail behind other countries despite two- and threefold increase in Internet user numbers.**

**Arabic language web pages form a dismal 0.1 percent of the entire content of the Web, though Arabic speakers constitute five percent of the world's population.**

**It is actually obvious that the situation in the Arab world comprising 22 countries with a population of about 300 million inhabitants will improve dramatically in the years to come.**

**Nationalization policies and increasing numbers of school leavers are forcing educational policy makers to act. IT is seen by many of them as the prime opportunity to face the massive educational demands.**

**Nevertheless substantial differences will remain across countries. E-learning activities are mushrooming mostly triggered by local and foreign IT-companies and national ministries of education. A strong focus is on vocational training and school level up to secondary school. However, so far programs are not coordinated across countries. Different local or foreign providers of platforms and networks are used. Therefore portability of national solutions will not be guaranteed.**

## TECHNOLOGICAL SOLUTIONS

**It might be argued that mobile systems could be an alternative that is more promising as use of handys increases with high pace in developing countries and becomes an alternative to terrestrial networks. Some authors seem to be extremely optimistic about the use of mobile devices (e.g. W. Louw 2005) however so far only very limited trials are conducted in Africa e.g. using SMS for student information via mobile phones at University of Pretoria (T. H. Brown 2004). Mobile communication is also depending on desity of transmitting points which is still very low.**

**Furthermore bandwidth is only 9,6 Kbit/s. Other wireless transmission techniques with higher bandwidth are costly. 2 to 10 Mbit/s over 20 Km may need investment of 3500 US $ (U. Afemann 2001, P. 109). In case of high data transmission speed and large distances satellite transmission is necessary.**

**Geostationary satellite uplink and downlink stations cost about 30.000 US $. Some projects also work with high frequency waves HF. Such stations cost about 1000 US $ but are limited to transfer of e-mails. To equip e.g. Nigeria with telephone and and internet access at average world level would imply investment of nearly twice the GNP of the country.**

**Keeping these facts in mind it seems surprising that donor organizations put strong emphasis on creating Virtual Campuses for African States (EC, Word Bank) or including selected African States lo larger institutional arrangements (Commonwealth of Nations, UNESCO). In what follows we will discuss five of these projects namely the Virtual African University, the Avicenna Project, the Virtual Arab University, the Syrian Virtual University and the Virtual University for the Small States.**

## THE AFRICAN VIRTUAL UNIVERSITY

### Technical infrastructure

**The African Virtual University started as a World Bank project. The AVU infrastructure consisted initially of a broadcast network with the up-link at COMSAT Tele-port in Clarksburg, Maryland, USA and multiple receive-only sites (AVU learning centers) spread across Sub-Saharan Africa. This network utilized digital video and audio broadcast over the New Skies Satellite (NSS) 803 in C-Band.**

**Full interaction was achieved through two way audio utilizing telephone land lines as return links and also through the use of Internet technologies like email, forums and chat boards.**

**The typical AVU classroom has between 25-30 students, actively participating in high-caliber learning experiences by viewing instructors on large screen projectors, television monitors or computers and interacting with the instructor in real-time using phone, fax and e-mail.**

**This framework allows a student in Rwanda or Ghana, for example, to pose a question to a professor in Togo or Canada that can be heard and commented on by students in Uganda and Senegal. At each participating AVU learning center, on-site facilitators guide students through materials and act as liaison with course instructors. Each AVU learning centre is equipped with at least 50 computer and Internet access.**

## The Objective

**According to the project founders this one-to-many nature of the network offers the cheapest way of reaching millions of people simultaneously in real time.**

**"AVU's delivery model combines an integration of satellite technology and the Internet that allow it to provide educational content from all over the world at an affordable cost. The delivery model takes into account the technology and infrastructure situation that currently prevails in Africa. AVU places a high premium on interactivity and local learner support so as to ensure pedagogical effectiveness.**

**World-class professors from universities around the globe deliver classes from a studio classroom. Courses and seminars are beamed by satellite to AVU learning centers all across Africa, which are equipped with inexpensive satellite dishes capable of receiving the signal".**

## Official Achievements

**Since the launch of its pilot phase in 1997, AVU has provided students and professional in 17 African countries over 3,000 hours of interactive instruction in English and French. More than 24,000 students have completed semester-long courses in technology, engineering, business and the sciences and over 3,500 professionals have attended executive and professional management seminars on topics such as strategy and innovation, entrepreneurship and e-commerce.**

**AVU provides students access to an on-line digital library with over 1,000 full text journals. Over 45,000 free AVU e-mail accounts have been created and the AVU website currently receives more than 1 million hits per month.**

## Some Shortfalls

**The above cited paragraphs are taken from official web sites of the African Virtual University. However; looking in more detail to the project achievements some severe shortfalls are discovered. Actually the number of students registered in semester long courses is only 3000. No data about completion rates are given.**

**Finally only very few courses have been transmitted (in Sept. 2002 only 3 and none in the rest of the year according to timetable of schedules on the official web site). That means that transmission capacity was totally underutilized.**

**The educational level of the courses offered is not representing full degree programs as envisaged instead some programming courses and general courses on management are being offered.**

**The program was based strongly on video lectures of the so called "best experts". However video lectures are not an interactive way of teaching. If feed back is taken to the serious, than the technology is limited to very small numbers of students.**

**The digital library mentioned above consisted mainly of some World Bank web publications, free electronic journals and a reference to a commercial editor, which is not free of charge.**

**Courses are obviously developed outside Africa in the US or Canada, no adjustment to local context was provided. Courses do not address areas where the african public sector might have difficulties to provide respective programs e.g. in local languages instead it concentrates on demand of upper class students using their home computers or the ones established at the High Tec centres.**

**All in all it is a high tec solution for student elite. Therefore it may have been also a hidden objective that this design of virtual campus may pave the way for foreign educational courseware which otherwise would not be able to enter the relatively closed local educational markets.**

**Finally the project does not address the problem of creating brain drain and educating potential migrants for European and American ICT industry.**

**AVU´s mission mentioned in its propaganda "To bridge the digital divide and knowledge gap between Africa and the rest of the world by dramatically increasing access to global educational resources throughout Africa by tapping the power of modern information and communication technology" sounds ridiculously unrealistic and ideological in the light of the observations made so far.**

**Juma concludes "although the AVU programme appears to be a promising innovation pertinent issues relating to sustainability require serious consideration. Among them is the issue of cost. The programme is heavily capital intensive, particularly in the purchase and maintenance of the satellite receive terminal equipment which host universities will have to shoulder after World Bank assistance is phased out" (Juma 2001, P. 38).**

**It is in line with the points mentioned above that the operational basis of the project at Nirobi moved out of the hosting university campus and it is said that the whole project will be redesigned in a more moderate web format (P. Murphy et al. 2002, P. 21). Also AVU will be managed in a business-like manner. Each site will form a business company in which the university will have shares (Juma 2001, P. 37).**

**The AVU is offering today Computer Science Degree programs from the Royal Melbourne Institute of Technology in Melbourne (Australia) and from Université Laval in Quebec (Canada), as well as Business Studies Program from Curtin University in Perth (Australia).**

**The AVU also offers eight to ten week certificate short courses from universities such at Georgetown University, New Jersey Institute of Technology (NJIT) and Indiana University of Technology. The main platform for the course delivery is now WebCt.**

**So finally the main delivery format is changed from broadcast lectures to web based instruction with programs completely bought in from abroad.**

## VIRTUAL UNIVERSITY FOR THE SMALL STATES OF THE COMMONWEALTH

**The Commonwealth of Nations project for the Small States in many aspects had a different design. It was basically planned as a consortium of decentralized virtual systems. The core activities were planned to follow these steps:**

- **Needs assessment**
- **Program development and delivery**
- **Development and maintenance of virtual systems**
- **Provision of learner support systems**
- **Leadership on policy development and strategic planning**
- **Research on virtual education**

**The total cost was estimated at 22 Mio Dollar**

**The main objectives are to share existing course material, develop new courses, access to research and development capacity. The access should be based on low bandwidth. Principal objective is to reduce cost of information and communication technology in higher education.**

**So at first sight we observe that development of educational material is by member countries themselves and that a needs assessment will be made before the program is set up.**

**However the selection of institutions seemed arbitrary or at least not obvious at first sight.**

**What else have Tonga, Grenada, Namibia, Botswana and Mauritius in common except of being members of the Commonwealth? Is colonialism still the predominant force to join efforts? How can curricula been streamlined to cope with such a diversity of countries, languages and cultures?**

**Also the project emphasises modularization of content and it will be based on American industry standards IMS (Global Learning Consortium). This means that new course material has to be compliant with these standards. In this context it is important to know that many small states have affiliates of foreign educational institutions. Some of the institutions have only regional scope some act at national level. However, basically the affiliates of bigger foreign institutions might easier match the standards.**

**Also this will burden project developers not familiar with learning object standardization with an additional workload in a state where the standardization debate is ongoing and so far still in its initial phase. Learning objects have to be classified according to a large set of metadata.**

**It should be kept in mind that even among European universities we are still far away from using common repositories and exchange of course material. (see projects like Ariadne with low usage so far).**

**In a generally positive view towards use of learning objects P. Mohan and B.K. Daniel admit for one of the participating universities that "One major problem likely to be faced by UWI (University of the West Indies) in implementing our model is the creation of the learning objects themselves.**

**While UWI currently encourages its lecturers to develop quality instructional material, these efforts are still not widely recognized within the system. This could lead to educators are not willing to spend the time to develop learning objects" (P. Mohan, B.K. Daniel 2004, P. 941).**

**One solution proposed is by outsourcing the production of learning objects. Later they state that "Another short term problem is that instructors and tutors at UWI will have to be trained in reusing learning objects, as well as in the process of aggregating and dis-aggregating learning objects (P. Mohan, B.K. Daniel 2004, P. 942).**

**In the project outline furthermore Open Source software like Linux and Simputer are claimed to cater for low cost solutions, however it is debatable to what extent some of these technologies will become international standards (A critical review of experience with Simputer use in Tansania gives M. Duveskog et al. 2004).**

**Two statements from the project draft are self revealing: "There is little evidence of collaboration in the African region. There are facilitating mechanisms in place such as the Distance Education Association of Southern Africa and the Technical Committee on Distance Education however these have not yet lead to any significant collaborative activity such as shared program/curriculum development, materials development, interinstitutional transfer policies or training".**

**"As most higher education institutions are located in the urban areas, there tends to be some access to computers and low speed internet connections".**

**In the light of the points raised above it may be questioned whether this the right model apt to overcome the limited market size of the small states?**

**Very recent statements from the Commonwealth of Learning (COL) confirm the sceptical attitude towards the project "Against this background (criticism and more limited scope of e-learning, W.L.) COL will now take a different and more gradual approach to the development of a virtual university of small states" and later "Subsequent work has revealed that donor countries are not enthusiastic about funding the organizational aspects of the international consortium" (J. Daniel 2004).**

**Actually a funding and support of local institutional initiatives is favoured against the initial top down structure. First courses probably bought in or open source are now expected to be offered in 2007.**

## (EC/UNESCO´S AVICENNA PROJECT

**The Avicenna Virtual Campus is a networked learning and production platform, mobilizing major EU and international organizations which individually bring stability, experience, credibility and innovation.**

**Funding is provided through EUMEDIS Euro-Mediterranean Information Society. The initially planned funding period was from 2001-2003.**

**It was planned to create Avicenna Knowledge Centres in 11 Euro Med states (Algeria, Morocco, Tunisia, Egypt, Jordan, Lebanon, Malta, Palestine, Cyprus, Turkey, Syria). The study programmes will be mainly supplied from EU ODL providers (OU, UNED, Nettuno, Université de la Mediterrane).**

**Some courses are said to be adapted, some courses should be own developments of Avicenna Centres. The platform to deliver the courses is actually Plei@d, a French platform developed by the CNED, certainly not one of the most well known platforms. Also the platforms system language so far was just French.**

**In general the long term strategy seems to be a bottom up strategy; however it might prove quite complicated to co-ordinate curricular needs of the different countries and their educational institutional infrastructure on the basis of a single project. One of the mayor EU distance education providers already stepped out (The British OU). Areas envisaged are science and technology, management, computer studies, social sciences, arts and liturature, environmental studies, social sciences, health and social welfare.**

**The Avicenna Project comprises 15 Mediterranean Universities. Also training for staff at Avicenna Knowledge Centres is offered.**

**So like in the AVU project we find a network solution with content mainly delivered from outside at least in the starting phase. One of the leading organizations involved will be the CNED from France (Vigliano 2003). However in the meantime also other project partners such as Al Quds OU have produced modules for the ple@d platform (Y. Abuzir 2006, P. 153).**

**Also a separate infrastructure is created on top of existing educational institutions, an old shortfall of institution building in development aid projects.**

**The program actually started activities in 2003, however even at the end of 2003 the projects web site seems not yet to be fully operational. So; finally operational phase is ended up as being 2004–2006.**

**The projected long term objectives are:**

- **an educational virtual library containing 120 multimedia and multi-lingual course units of 20 hours each.**
- **45 experts trained in distance education (3 for each centre)**
- **310 faculty members and teachers trained in the production of multimedia courses**
- **600 tutors trained in distance education methods (10 in each centre and per semester)**
- **12000 students trained in a three years period and 66000 for a six years projection period (200 in each centre and per semester)**

**It seems unclear to what extent the objectives of the project will be achieved and especially if the platform based modules will easily be incorporated into local platforms of the participating organizations later on.**

**An initiative quite similar to the Avicenna project is the so called "Mediterranean Virtual University". It is like Avicenna a EUMEDIS project including a Danish and a Scottish University as well as some universities in Palestine, Malta, Jordan, Egypt and Turkey. The focus is on course development in computer science. Courses are supposed to be developed by the partner institutions. There are no special study centres planned. After funding activities are supposed to be carried on by the participating institutions. Whether this is a realistic perspective future may show.**

## THE VIRTUAL ARAB UNIVERSITY

**Somewhat related to the Avicenna Project is the Virtual Arab University - sponsored by the Arab Gulf Program for United Nations Development and supported by UNESCO - that started activity in October 2002. It is basically a private non-profit institution. Major contributions in setting up the university were provided by the British Open University. It is planned to set up regional branches in Saudi Arabia, Bahrain, Jordan, Lebanon and Egypt, the head quarter being in Kuwait.**

**During the initial years of program offerings, the AOU will utilize course materials produced by the UK Open University for three of its programs: English Language and Literature, Information Technology and Computing, and Business Administration.**

**To award a Bachelor's degree, the AOU requires the successful completion of at least 127 semester credit hours specified according to each study program. These include 31 credit hours comprising the following University required subjects/topics:**

- **Arabic Communication Skills**
- **English Communication Skills**
- **Arab Islamic Civilization**
- **Basic Skills in Mathematics**
- **Independent Study Skills**
- **Internet Skills and Learning On-Line**
- **Courses in the Humanities, the Arts,**
- **Social Sciences, and**
- **Environment**

**Fees may be in the range of $1,200-$1,500 USD, to which the cost of study packages and other fees are added, estimated at around $300 USD.**

**The AOU intends to foster a diversified number of appropriate and modern learning media including printed material, audio and videotapes, CD-ROMs, and Internet-based support. In addition, further instructional support will be provided by the learning centres via a dedicated integrated satellite network that includes a host of VSATs.**

**Therefore, a mixture of independent study and scheduled tutor-assisted sessions is envisaged to comprise the generic format of the learning platform at the AOU.**

**In coordination with UNESCO, the university is currently working on the building of a satellite telecommunications network linking all of its branches in the Arab countries.**

**In addition to teleconferencing, this network will allow the AOU to transmit lectures delivered in any branch to all the other branches where they can be shown concurrently or recorded for later viewing by the students. Each course, however, culminates in a final exam of substantial weight.**

**This exam would be administered in all university branches at the same time, and would be centrally controlled by the University Head Offices in Kuwait. It will be allocated around 50% of the total grade for the course, with the remaining 50% assigned to term work including tutor marked assignments and quizzes.**

**In principle, for every 20 students, a course-specialized tutor is assigned. The time schedule of the tutorial sessions will be arranged completely prior to the commencement of a term of study**

**The actual website employed is rather poorly designed. For communication FirstClass is used. There is no professional content management system for the uploaded support materials being used. Basic information is provided by books and face to face tutorials. The patterns described above may characterize the university at the moment as a relatively expensive distributor of traditional British OU course material with technological support at regional study centres. Actually countries like Iraq and Palestine seem not to be included. Despite the patronage of UNESCO Avicenna study centres are not really synchronized with Learning Centres of the AOU.**

## THE SYRIAN VIRTUAL UNIVERSITY

**The Syrian Virtual University is a national government supported institution. The mission of the project that started in 2002 is the following:**

**"To provide world-class virtual education for Syrian and Arab students at home, by creating an integrated online educational environment consisting of online degrees offered by selected accredited American, European and International universities, or developed and offered by SVU".**

**The degrees are internationally and locally accredited by the US Department of Education, and several other official International and European accrediting bodies. In addition, those degrees will be accredited and endorsed by the Ministry of Higher Education in Syria and other official accrediting authorities in the region.**

**Student support services are provided through a virtual community of Arab professors and experts worldwide. So far about 200 external tutors of Arabic origin have been contracted. Internet access is given mainly via a network of tele-centres, equipped with about 20 computer places in one computer classroom.**

**The programs so far offered are a preparatory course in English language and a Higher National Diploma in Computing and Business Applications. The course material is bought in completely from American and European Institutions. The main service of the Syrian Virtual University consists in tutorials in Arabic language via networks and the access to internet at local centres (in Syria about 20). Furthermore local accreditation of achieved grades and a relatively comfortable communication platform (also partly bought in from Ohio State University) can be regarded as assets of the system. Actual enrolment in 2006 is around 700 students. The model of the Syrian Virtual University at present can be regarded as a local broker for foreign online content and degree programs. Courses are offered so far in a foreign language (English).**

**Considering the fact that Syria opened up after a long period of socialist economic structures the public university sector seems to be overcrowded with enrolments and at the same time has a big gap of qualified teachers. It is said that only an extremely low number of university teachers is handling English at a good level. So for some time the scope of giving students access to foreign degrees may be justified.**

**However the programs bought in are very diverse in structure and academic level therefore good local tutoring will be a difficult task to meet. Also capacity of tele-centres to access computers with fast internet connection is very limited.**

**Therefore a concise long term strategy how to reach and promote local teachers and potential authors of locally adjusted courses is needed. Otherwise the Syrian Virtual University will become merely the entrance portal for foreign educational content providers to the Syrian educational market.**

## CONCLUSIONS

**Basically African and Arab countries with large spatial extension and in case of the Arab countries with a common language as well seem to be ideal candidates for distance education and may be even for web based education.**

**However already in the past we found that distance education based just on print has not always been successful so far. The reasons are that distance education reflects an industrial model that needs careful planning, continuous production, functioning distribution logistics and teachers used to write good educational texts. Also some capable tutors have to support online learning.**

**These characteristics are not widely met in African and Arab countries however exceptions are also observable to a limited degree (e.g. UNISA). Also is has to be kept in mind that politically in many countries of the regions here discussed the market of educational media is strictly controlled by government and that fears concerning external political dominance are prevailing.**

**The problems mentioned above will be multiplied with the introduction of virtual campuses as technique, logistics and staff training become even more complex (Laaser 2002a, 2002b). On the other hand certainly African and Arab countries should not be excluded from rapid progress in educational technology. So what should be done? To find answers to that question we will mention some basic propositions.**

**Virtual systems should start at national level not with international projects. They should link existing institutions preferably already to those engaged in electronic delivery formats. A lot of the above mentioned projects were based on over optimistic implementation schedules underestimating the difficulties of international cooperation and many of them were downscaled later.**

**Financially projects should not relay to a substantial degree on foreign aid, otherwise the danger of projects to die after funding is extremely high. Too optimistic calculations or even absence of business plans during the funding period unfortunately are found in a lot of cases (e.g. NetTel@Africa according to D. W. Keats and M. A. Beebe, P. 957). Programs should develop curricula that meet local demand for the respective qualifications.**

**It may be also preferred to concentrate on relatively short training courses that will be sold at a price that guarantees survival of the projects including continuous investment in upgrading the technological basis. Often curricula are strongly influenced by the foreign project partners (e.g. Cisco, Microsoft) and localization may at best consist in using the local language.**

**It may be in many cases sufficient to offer a tutorial and communication platform and to leave course delivery to traditional media like print and audio cassettes. However the administrative component including enrolment, grading and billing should also form part of the platform if possible.**

**The course team should be taken from local university teachers however supervised by a council of external experts to approve the quality of the course material. Accreditation should not be left to foreign institutions.**

**Projects should include a medium term strategy pointing out how local course content and local tutoring can substitute at least in part the foreign teaching components.**

**The logistics of the system should be tested in a preparatory phase.**

**In general priority may be given to infrastructure first before concentrating on application in educational context. Here satellite and mobile technologies seem to be more promising than terrestrial systems.**

## BIODATA and CONTACT ADDRESSES of AUTHOR

**Dr. Wolfram AASER was born 03.10.1943 Now he is Academic Director at FernUniversität in Hagen since 1976. Co-ordinator of the didactic sections and Academic Director at the Centre for Distance Study Development at FernUniversität Hagen (since Sept. 2005 ZMI), Germany. He completed his PhD. in Economics at Technical University Berlin in 1974. He was Temporary Lecturer at Universities of Paderborn (1985-87) and Frankfurt (1981) Online Lecturer at UNED, Spain 2003/2004 (Maestria en Educacion a Distancia) and at University of Joensuu, Finland 2005/2006 (IMPDET PhD program on Educational Technology). His main activities are development of interactive multimedia courseware (CD-ROM and WEB-based Training) as training seminars for the distance educators in Europe, Africa, Latin America and Asia. Educational Video and TV: Productions on Economics, Business Administration, Law, Education and Electrical Engineering. He is member of SETRAD (India), GMW (Germany), Scientific Board Revista Iberoamericana de Educacion a Distancia (RIED)(Spain), Revista de Educación a Distancia (RED) (Spain) and he has numerous publications on media and evaluation in national and international reviews.**

**Dr. Wolfram LAASER**
**Akademischer Direktor**
**FernUniversität in Hagen/ZFE,**
**58099 Hagen, In der Krone 17, GERMANY**
**Email: Wolfram.laaser@fernuni-hagen.de**
**Fax: 0049 2331 688896**

## REFERENCES


**Y. Abuzir, The experiment of AlQuds Open University in Open Distance Learning Using New Technologies, in: 2nd International Open and Distance Learning Symposium (Proceedings), Anadolu University 2006**

**U. Afemann, Anschluß gesucht, in: Entwicklung und Zusammenarbeit 4/ 2001, P. 108-111**

**African Virtual University:**
**http://www.avu.org/section/about/index.htm**

**Arab Open University:**
**http://www.arabou.org**

**Avicenna Project:**
**http:// avicenna.unesco.org**

**KJ de Beer, SM Thulare, Africanization of Higher Level Distance Education Trough United Nations Structures, paper presented to the ICDE world conference, Düsseldorf 2001.**

**T. H. Brown, The role of m-learning in the future of e-learning in Africa? 21st ICDE World Conference, Proceedings Hong Kong 2004**

**Commonwealth of Learning:**
**http://www.col.org/newsrelease/0204virtualu.htm**

**J. Daniel, A virtual university for small states of the Commonwealth, An update from the Commonwealth of Learning, COL EdTech News, Sept. 2004.**

**M. Duveskog, E. Sutinen, Vesisenaho, E. Yusha, Simputer as a Platform for ICT Education in Tanzania, in: IEEE Conference Proceedings, Advanced Learning Technologies, Kinshuk et al. Eds, Joensuu 2004, P. 1018 f.**

**Anne Elliot, Internet Issues in Africa, July 2000**
**http://www.middlemarch.co.nz/anne/africa/intro.html**

**M. Jensen, The African Internet – A Status Report, July 2002**
**http://www3.sn.apc.org/africa/afstat.htm**

**M. N. Juma, African Virtual University, The Case of Kenyatta University. Kenya, Commonwealth Studies in Education, Commonwealth Secretariat 2001.**

**D. W. Keats, M.A.Beebe, Addressing digital devide issues in a partially online masters programme in Africa: the NetTel@Africa experience, in: IEEE Conference Proceedings, Advanced Learning Technologies, Kinshuk et al. Eds, Joensuu 2004, P. 953-957.**

**W. Laaser, Technologies for Distance Education in Developing Countries, in: S. Mitter, M-I Bastos, A. Bartzokas, eds., Europe and Developing Countries in the World Information Economy. London, Routledge, London, New York 1999, P. 201-216 .**

**W.Laaser, Platforms for a Virtual University System, in: Integrating Technology into Teaching and Learning, R. Kumaravel (Ed.), Tiruchirappalli, India 2002a, and P. 7-13.**

**W.Laaser, A Virtual University Environment. The German Experience, in: Advancing Virtual University Education No. 1, University of Joensuu, Joensuu (Finland) 2002b, P. 47-57**
**W. Louw, Taking the distance out of distance education through the means of mlearning, paper mLearn2005.**

**Mediterranean Virtual University**
**http:// www.med-vu.org**

**P. Mohan, B.K. Daniel, 2004, A New Distance Education Model for the University of the West Indies: A Learning Object Approach, in: IEEE Conference Proceedings, Advanced Learning Technologies, Kinshuk et al. Eds, Joensuu 2004, P. 938 f.**

**P. Murphy, S. Anzalone, A. Bosch, J. Moulton, Enhancing Learning Opportunities in Africa, World Bank, African Region Working Paper March 2002.**

**A. Robinson, Transnational ODL: Europe and the Arab World, paper presented to the ICDE world conference, Düsseldorf 2001.**

**Syrian Virtual University**
**http://www.svuonline.com**

**P. Vigliano, Avicenne, Campus Virtuel, in: Canal education (CNED), No. 25, P. 13-14, 2003**