

Multi-media

Public Service Media in the UK

Access Media Alliance (AMA) (<http://www.alertaccess.net/>) is committed to fair access to media platforms and contents.

The conversion to digital broadcasting has immense implications for public service media and the excluded. AMA members are committed to work with the governments, regulators, media employers and unions to help them identify innovative approaches to tackling the root causes of “institutionalised exclusion culture”. AMA members promote public interest values and non-commercial services for the national and international information infrastructure through research and policy analysis, outreach to nonprofits and foundations, and print, video, and online publishing. As the capacity for broadcasting increases with the implementation of digital broadcasting, the possibilities for public service media will increase as well.

AMA members believe that the success of public service media in the digital age will depend on alliances with local community organisations in order to ensure access to diverse voices in programming. Our ongoing observations of public service media suggest that fertile ground exists from which new models might be grown, including putting the capabilities of digital broadcasting to use for the public interest and for common good.

AMA analyses issues and options for the public interest and non-profit communities in the digital broadcasting debate.

Cultural media arts to educate

Media Working Group (<http://www.mwg.org/>) is a hybrid of media arts center, arts incubator, producer network and laboratory, and service organization that provides training and education to its community-at-large. The organisation provides capacity for producers, educators, telecommunications policy analysts to carry-out their work on their own terms. It is an experiment in artistic control, intervention in media culture, and the creation of a networked organization capable of participating in the emerging local and global economies and cultures.

Supporting media for communities in the UK

The Community Media Association's (<http://www.commedia.org.uk/a2d/atd.html>) primary purpose is to support the development of local media enterprises for community based creative and cultural expression, community development, information and entertainment. Media forms include community radio, cable broadcasting, community TV and multimedia on the Internet.

Exchanging Information about community media

DevMedia (<http://www.devmedia.org/>) helps people exchange information and news about how communication tools can promote development and democracy. DevMedia's focus is on media that are in the hands of people and communities. It draws attention to ways of improving peoples' access to media to encourage the sharing of ideas, voices and knowledge: locally and globally.

DevMedia users generally include people interested in participatory and community uses of radio, video, TV, telecommunication tools, and the Internet.

Interactive Television for Distance Education

This cooperative effort uses new information technology which combines the potential of television, telecommunications and computers and brings knowledge and learning directly to those with the most need and least opportunities. This programme (<http://www.itu.int/ITU-D/bdtint/general/specialprog.htm>), a partnership of ITU-D and UNESCO's Educational Communications Division, will provide interactive teacher training for developing countries.

The pilot project, coordinated by ITU-D and UNESCO and its partners, will run in 15 Learning Centres in Morocco beginning in 1997. Other developing countries have stated their interest in this pioneering endeavour. Combining sophisticated technological systems with clear educational objectives, cooperation projects ensure that development resources are efficiently used where they can be most effective and sustainable.

Education in Africa through multi-media: The Imfundo Initiative

Imfundo (<http://www.infundo.org/souterthirteen/netsum.htm>) is a unique initiative, providing partners with a rare opportunity to help transform the education sector in Africa.

Policy makers in developing countries are exploring ways to establish national and regional peering of Internet take-up in their countries. At the moment virtually all traffic from Africa travels to the United States before it is exchanged. National and regional Internet exchange points can considerably reduce traffic on expensive international circuits and thus bring down end-user costs. The manager of the South Africa-based Johannesburg Internet Exchange Point (JINX) estimates that exchanging national traffic saves the South African Internet industry \$5.75 million annually at minimal management cost.

Future Projects

Our menu of possible projects in pilot countries includes:

- Provision of ICT in teacher training facilities
- Cyber cafés to provide access to the internet
- Telecentres, with satellite and/or internet access, providing a range of community and education services
- Cyberbus, equipped with workstations and a satellite link to the internet, providing mobile access to schools

- Computer labs in schools, possibly open to the community out of school hours
- Education ministries management information systems and connectivity
- Providing connectivity to community radio stations, to enable them to use the internet to access broadcast quality programmes, to obtain information for broadcast, to network community radio stations to each other, and perhaps to provide internet access to the local community
- Higher and further education institutions connectivity
- Production and customisation of educational software, and connectivity of educational material production
- Production of low cost digital books
- Video conferencing
- Educational management information systems

For every project we are involved in, our philosophy is that they must be sustainable.

This leads us to believe that education-only projects are unlikely to be sustainable. We are therefore attracted to mixed-use facilities, which might provide education services some of the time, but which would also provide commercial or other services from the facilities.

Media Diversity in Southern Africa

The media in Southern Africa (<http://www.misa.org/>) promotes media diversity, pluralism, self-sufficiency, independence. However, it is under constant attack from the more repressive governments in the region and those institutions and individuals who wish to restrict the free flow of information. Media practitioners face detention, arrest, imprisonment and even death.

Multimedia to improve education in rural Niger and Burkina Faso

www.ftpiicd.org/files/research/reports/report6.pdf gives a research report from August 2001 about new technologies and education in developing countries:

ABSTRACT

Education in many West African countries is especially weak in rural areas, where teachers are deprived of up-to-date information and other basic educational resources. New satellite services, which were recently introduced in Niger, are paving the way for improvement of the educational infrastructure in isolated areas. As these wireless services become a reality, advanced content production techniques are required. In fact, content plays a key role in the adaptation and long-term success of these new information architectures. This study by Noterik & Doonder Multimedia for SNV and IICD examined the applicability of new multimedia technologies in the field of education in Niger¹ and Burkina Faso.

Within the framework of our research project, we found a growing interest in the use of new technologies for educational programmes. We demonstrate that the use of audio-visual information in combination with the new XML standard SMIL can help to accelerate the

production of attractive and inexpensive multimedia applications. We also point out that educational material can be stored in television and radio archives. The conversion of these archives into digital formats will help develop an inexpensive educational content library, suitable for computers as well as for radio and TV.

Niger is, interestingly, one of the first countries in the world to integrate novel satellite services with rural radio projects, giving rise to cost efficient information architectures in isolated areas. These developments are promoted by RANET, a coalition of organisations that attempts to create awareness of the use of community radio and the Internet in the region. We believe that a pilot project should be conducted in collaboration with RANET to elucidate the conditions under which new technologies can be productive in educational programmes in West Africa and further strengthen the coalition that has been formed around RANET.

The information architecture emerging in West Africa (Niger) is illustrated and described in figure 1. The new satellite services can provide a good basis for sharing valuable content and promoting collaborations in ICT and education in different developing countries.

COSTS

Basic Multimedia Studio

Costs (Hardware in US \$, including VAT)

Pentium class system	\$ 1,500
DV camera	\$ 700
Digital photo camera	\$ 400

Storage

CD (650 Mb)	\$ 0.5
Hard disk (20 Gb)	\$ 120

Computers (clients)

Desktop	\$ 1,000
Laptop	\$ 1,400

Solar energy stations

Low energy station	\$ 400
High energy station	\$ 3,000

Community Radio & TV

Radio station, including training and power supply (Wantok Enterprise) \$ 13,000

Second hand TV transmitters, 350 Watt	\$ 4,000
Second hand TV transmitters, Kilo Watt	\$ 12,000
FreePlay™ (Wind-up and solar, no batteries radios)	\$ 50

Satellite

Basic Multimedia Studio	Costs (Hardware in US \$, including VAT)
WorldSpace	
WorldSpace receiver	\$ 90
Adapter/modem	\$ 130
Receiver DMS fee /month	\$ 10
WorldSpace Foundation Channel Service (Minimal contribution per year)	\$ 10,000
VITAsat	
Ground station (Assembled by Wavix)	\$ 2,500
Additional annual charge per station	\$ 500

Depending on the final architecture a fully operational infrastructure for an advanced communication centre will cost between the US \$ 15,000 and US \$ 30,000.

REVIEW AND CONCLUSIONS

In Niger (NGOs) and in Burkina Faso (University of Ouagadougou) there is a growing interest in using new satellite and multimedia technologies for educational programmes, particularly in rural areas. The recent introduction of WorldSpace digital media services (DMS) and VITAsat email exchange services demonstrate that a relatively inexpensive communication network is applicable in these areas. RANET is integrating these developments with community radio stations, giving rise to a cost efficient information architecture.

The use of multimedia content offers interesting opportunities to augment community radios with TV broadcasts. Digital content can easily be converted to TV with reasonable quality, for example using the Matrox dual head G450 graphic card (US \$ 150). Second hand TV transmitters (350 W, 15 KM range) can be purchased for US \$ 4,000 and many electronic companies have small portable TV receivers available these days. New developments in the field of home entertainment, such as reported by Nokia, Realnetworks and Sony, will provide alternatives for PC's and boost up the delivery of streaming media into user-friendly devices.

<http://www.noterik.nl/nnd2/research/africa/> also recognises that education in many West African countries is especially weak in rural areas, where teachers do not have up-to-date information and other basic educational resources at their disposal.

The site notes that exciting new developments are currently taking place. SNV (Netherlands Development Organisation) and IICD (International Institute for Communication and Development) intend to improve the conditions at rural community schools as part of the ongoing battle against poverty. SNV and IICD requested Noterik & Doonder Multimedia to conduct a feasibility study on the applicability of multimedia technologies in the field of education in Niger and Burkina Faso. The study was conducted this spring. The plan for this study was triggered by recent developments in the field of satellite technologies.

The study indicates that the combination of satellite services, multimedia technologies and community radios can give rise to a very powerful and cost-effective information architecture for rural areas.

Multi Media approach

The conference held by WACC (<http://www.wacconline.org.uk/404.php>) set its agenda within the context of all print and electronic media. It examined TV/radio collaborations as part of educational multi-media approach, together with the publication of detailed back-up information where print support materials are also needed.

Summary: Multi-media

There is evidence for the use of a range of media used for community communication. This is acknowledged by several groups and organisations as a more comprehensive and inclusive form of getting a message across. The gradual conversion of many media types to digital will also have implications for the use of multi-media. The multi-media approach is of course used by telecentres.

Digital TV, Video and Libraries

Technicalities of Digital TV

Ntl (<http://www.ntl.com/locales/gb/en/guides/digitaltv/inbrief.asp>) describes how Digital TV has been the dream of broadcast engineers since the 1970s. The key breakthrough came in 1994 with the development of the MPEG-2 video compression standard – a low-cost means of reducing the bit-rate required to represent video information in about 2% of its full value, without noticeable loss of picture quality. With standard definition TV (SDTV), the digital video stream reduces from 216Mbit/s in the studio to some 4 Mbit/s in the home. Although systems vary, MPEG-2 video compression remains a common component of all digital TV standards around the world.

Digital Technology

The airwaves are used more efficiently by digital signals than by analogue broadcasting, as several TV and radio channels can be carried on a single frequency - a technique known as multiplexing. At the moment, each frequency is allocated to an individual broadcaster. Digital TV will be broadcast in three different ways: by terrestrial transmitters (using the airwaves), by satellite and through cable.

By around 2004, Satellite is likely to be the way most people take digital. Other digital services - phone services and the internet - are already carried on cable.

TV and radio news services are also already available online via the internet. Increasingly the internet is becoming available via TV sets. Digital TV viewers now also have access to enhanced, interactive text services and are able to send e-mail, order goods and services, and schedule their own viewing through an Electronic Programme Guide (EPG).

The majority of digital radio is currently listened to over the internet. There are an estimated 15,000 radio stations now available worldwide.

According to <http://www.cwn.org.uk/education/university-of-warwick/99/05/990525-digital-tv.htm>, digital technology is driving terrestrial, satellite, cable TV and the Internet to converge.

<http://news.bbc.co.uk/1/hi/sci/tech/450492.stm> gives information on how digital television converts the pictures and sound into a string of binary digits (ones and noughts). These are transmitted through modified transmitters and again received by an aerial or satellite dish, or just sent down a cable.

Digital technology - pros and cons

<http://news.bbc.co.uk/1/hi/sci/tech/450492.stm> lists the pros and cons:

Pros

Digital signals are more efficient than analogue, so six channels can be broadcast on the same frequency that would carry just one analogue channel.

Each frequency is called a multiplex. There are six terrestrial multiplexes available, which makes for a possible 36 separate channels.

A better quality picture. There is no "ghosting".

Cons

Problem of compression, the process of squeezing transmission information so it travels faster and can be decoded quicker. The result for the viewer is a jerky motion or a blocky picture. Sometimes the picture can just black out.

Improved sound is not necessarily a given, either, since existing terrestrial Nicam sound is already digital.

Some service providers use a technique called statistical multiplexing, to get round this. It means "complicated" pictures muscling in on the bandwidth of less complex transmissions.

Project to Understand Digital Technology

The Community Media Association (<http://www.commedia.org.uk/a2d/atd.html>) has a major transnational project, Adapting to Digital, which aims to significantly develop the community media sectors use and understanding of digital technology. It covers a range of areas including research and development, input into policy at the national and European level, training and production of resources.

The project includes:

- Producing reports on the impact of digital audio broadcasting on community broadcasters and on the potential for digital terrestrial delivery of community broadcasting services.
- Producing a Community Television handbook.
- Supporting the development of local television, including TV RSLs and Cable.

The project is supported by the ESF-Adapt scheme, National Lottery Charities Board and Arts for Everyone.

Digital Technologies for Developing Countries

The International Telecommunications Union (<http://www.itu.int/ITU-D/tech/>) gives information on how the development of digital technologies and the convergence of broadcasting, telecommunications and informatics offer sizeable

opportunities for the implementation of appropriate new technologies by developing countries.

Applied research and the transfer of technological know-how will be an indispensable part of the task of expediting the access to new technologies on a non-discriminatory basis for developing countries and countries with economies in transition. The programme will be carried out by various means, including symposia, workshops, conferences, seminars and expert advice.

As issues of network reliability and quality of service continues to be of considerable interest to developing countries, the programme focuses on management issues, marketing techniques and the introduction of new services, taking into account the recent trends in the development of telecommunications, broadcasting and informatics.

Digital Broadcasting Encouraged by the Korean Government

<http://www.atscforum.org/pr/PR-0304-KoreaBroadcasting.pdf> claims that to assist and encourage the transition to digital broadcast service, the Korean government plans to reduce import taxes on digital broadcast equipment. Financial support for Broadcast Stations' facility investments and HDTV program production is also being provided.

Digital Video in Ethiopia, to prevent HIV

Greater Cincinnati's own Media Working Group (<http://www.mwg.org/education/ethiopia/index.html>) was recently invited to join Michigan's Grand Rapids Community Media Center in training 20 Ethiopian educators and producers of educational television. Both media groups were invited by UNESCO.

Because 15% of the population in Africa is currently infected with HIV (and that percentage is expected to double), educating the populace about the virus has become a national necessity, with that agenda being incorporated into everything. Donohue explained that the training they offered, with their emphasis on video for television production, was tailored specifically to integrate HIV education across the curriculum. She said they considered the curriculum from a cultural point-of-view, and attempted to identify which cultural traditions helped to prevent HIV, and which actually contributed to risky behavior. They then moved to teaching digital video techniques and editing. According to Donohue, the indigenous production community is working with antiquated equipment and their newfound digital skills catapulted them 30 years forward in a matter of days. The group produced two video shorts addressing HIV-AIDS prevention, which can be seen on the MWG web site www.mwg.org.

The International Institute for Capacity Building in Africa is focused on teacher education, long distance learning, as well as health and economic issues. In undeveloped nations, Donohue explained, the three are consistently intertwined.

Digital Libraries

Digital libraries are a key technology for developing countries.

<http://dois.mimas.ac.uk/DoIS/data/Articles/julfpcatty:2002:v:20:i:1:p:7-13.html>

describes how they can assist human development by providing a non-commercial mechanism for distributing humanitarian information on topics such as health, agriculture, nutrition, hygiene, sanitation and water supply. Many other areas, ranging from disaster relief to medical education, also benefit from new methods of information distribution.

Perhaps even more important than disseminating information originating in the developed world is the need to foster the ability for people in developing countries to build information collections locally.

Summary: Digital Technology

Digital technology has recently emerged as an improved form of communication, particularly used for television broadcasting in developed countries. However, it is starting to be used in developing countries as well. Digital provides a new way of sending information, which can be compressed without losing quality. As seen in previous examples, it is possible to convert analogue transmitters to digital. However, to achieve the best transition, pilot schemes and resources to last for future generations are needed.