

Connections



A news publication of The Commonwealth of Learning • February 1998 Vol. 3, No. 1

COL announces internship programmes

The Commonwealth of Learning is pleased to announce the creation of three new initiatives that will enhance the professional growth of distance educators from developing Commonwealth nations by the sharing of experiences and information. The programmes provide for attachments and internship opportunities for distance educators at institutions within their geographic region, or at the COL office in Vancouver, Canada.

Opportunities will also exist for senior individuals, perhaps retired, who have a wealth of experience and knowledge to share. They will have the opportunity to go on assignment for several weeks to another Commonwealth country and undertake a volunteer advisory role to help others develop or enhance the work they are doing in distance education.

Three new programmes have been established:

Internship Programme—provides financial support for individuals who are at an early stage or mid-point in their careers and would benefit from a short-term attachment to another institution within their geographic region.

Sharing our Services Programme—assists developing or evolving distance education institutions/organisations by providing the voluntary services of senior distance education professionals who will share their knowledge, expertise and experience during an attachment period.

Young Professionals at COL—provides financial support for individuals at an early stage or mid-point in their careers to enable them to enhance their knowledge of distance education and international co-operation through a work assignment at COL.

Internship and attachment assignments will be linked to the current priorities in COL's *Three-year Plan*, e.g., the use of appropriate technologies, instructional design, non-formal education, copyright, learner support systems and training.

COL's internship and attachment programmes are scheduled to begin in February 1998 and will continue for a three-year period. Interested parties are encouraged to contact COL as soon as possible for further details. Details are also available on the COL web site at <http://www.col.org/internship.htm>.



Participants at the ministerial consultation in Vancouver, left to right (front row): the Hon. Alhaji Prof. J. Kapuya, (Minister for Education and Culture, Tanzania), the Hon. G.M. Machinga (Minister of Education, Sport and Culture, Zimbabwe), the Hon. Dr. G.K.T. Chiepe (Minister of Education, Botswana), Prof. G. Dhanarajan (President of COL), Dr. H.I. Macdonald (Chairman of COL), Ms. L. N. Katoma (Permanent Secretary, Ministry of Basic Education and Culture, Namibia), Father S. Mkhathswa (Deputy Minister of Education, South Africa) and the Hon. B. Mpinganjira (Minister of Education, Malawi)

Southern African ministers sign accord

Education ministers from six Southern African Commonwealth countries have signed an agreement that will see their respective ministries working together in order to meet similar educational needs. Botswana, Malawi, Namibia, South Africa, Tanzania and Zimbabwe will be sharing resources, experience and expertise, while COL will be co-ordinating the implementation of the distance-education-based programmes in a cost-effective manner.

Priorities include the in-service training of teachers in science, mathematics and technology subjects and increasing access to senior secondary level education through open schooling. A work plan was also developed.

The agreement was signed last month in Vancouver at the conclusion of a consultation on regional collaboration that COL held with ministers and senior education officials from the six countries. Resource persons from development agencies and other international organisations joined COL in helping to facilitate the discussions and develop the proposals. The sessions were opened by the Lieutenant-Governor of British Columbia, The Honourable Garde B. Gardom, Q.C.

DfID funds COL literacy programmes

...page 2

Canadian scholarships for Caribbean students

Following last year's Commonwealth Heads of Government Meeting, Canadian Foreign Affairs Minister, the Honourable Dr. Lloyd Axworthy, announced the establishment of a Cdn.\$1.75 million fund for a pilot programme offering Canadian scholarships to students in the Caribbean as an extension of the Commonwealth Scholarship and Fellowship Plan (CSFP).

The Canada Caribbean Distance Education Scholarship Programme (CCDESP) will be administered by COL over the next five years and will provide opportunities for undergraduate students in the Caribbean to study "at a distance" through Canadian post-secondary institutions.

While a unique departure from the traditional CSFP, the new COL programme will maintain CSFP's concept of facilitating a "multilateral trade in ideas," but will be delivered chiefly through the use of new technologies with only a short on-campus component. The programme will allow for a greater number of students at a lower cost and will minimise disruptions to students' personal lives.

The initiative also responds to the Commonwealth Education Ministers' desire for a more flexible CSFP and for undergraduate scholarships for small states.

COL President, Professor Gajaraj Dhanarajan, notes that "downstream benefits also include the furthering of co-operative working relationships between Canadian and



Canadian Foreign Affairs Minister, the Hon. Lloyd Axworthy (right), presents cheque to COL President, Prof. Gajaraj Dhanarajan, providing funds to administer the Canada Caribbean Distance Education Scholarship Programme

Caribbean educational institutions. Unlike other study-abroad schemes, this one will ensure that the local institutions and study centres are partners in the arrangements, providing them with opportunities for growth."

The new scholarship programme addresses identified vocational skill shortages and, as a pilot, will be available to students living in three countries: Dominica (teacher education), Jamaica (information technology) and St. Vincent & the Grenadines (hospitality management). The first students will commence studies in September 1998. Further information is available on COL's web site at: <http://www.col.org/modelskillstrain.htm>.

DfID funds COL literacy programmes

The campaign to eliminate illiteracy in the world will benefit from new project funding for COL announced by Britain at last year's Commonwealth Heads of Government Meeting.

Provided through the British Department for International Development (DfID) as additional core funds, the UK£500,000 "Focus on Reading" grant will enable COL to initiate new Commonwealth programmes directed at literacy training for adults and skills enhancement for those teaching reading to children.

Distance education methods and new technologies are to figure prominently in the literacy initiatives. Referring to distance education as "the educational wave of the future," COL President Professor Gajaraj Dhanarajan said that "with education central to the political agenda, distance education is rapidly becoming the means by which we can provide opportunities for learning to the world's masses."

Dhanarajan noted that around the Commonwealth there are still several hundred million illiterate teenagers and adults, two-thirds of them women. "COL will ensure that its new literacy programmes will be available to women on an equitable basis."

DfID has also provided funding for COL to conduct a study on current trends in "virtual" delivery of higher education.

COL is currently forming international advisory groups to help set directions for the new programmes.

Funding update

The Commonwealth of Learning gratefully acknowledges contributions to its core funding, received to date during the 1997/98 financial year (from July 1, 1997), from Australia, Britain, The Bahamas, Canada, Cyprus, Ghana, India, Jamaica, Kenya, Malaysia, Maldives, Mauritius, Namibia, New Zealand, Sri Lanka, Trinidad & Tobago and Zimbabwe—and first-time contributions from Papua New Guinea, Seychelles and Tanzania.

As noted elsewhere in this issue of *Connections*, both Canada and Britain have also provided core project funding in addition to major annual commitments from the Canadian International Development Agency, Province of British Columbia and British Department for International Development.

CHOGM endorses COL

At their biennial meeting, held late last year in Edinburgh, Commonwealth Heads of Government reviewed reports from COL's Board of Governors and from the preceding Conference of Commonwealth Education Ministers (see *Connections*, October 1997). The meeting's Committee of the Whole reported that it "received with satisfaction" the report from COL's Board of Governors and noted COL's "impressive decade of service to the Commonwealth."

The Committee also noted the endorsement of COL's *Three-year Plan* by education ministers and their concurrent agreement that governments collectively would provide about C\$5.65 million per annum to COL's core budget, over three years, through a three-tier funding arrangement.

In their *Edinburgh Commonwealth Economic Declaration* ("Promoting Shared Prosperity"), Heads of Government also agreed to "sustain and where possible increase bilateral assistance among our members; and to ensure the flow of resources to the Secretariat and its various funds, especially the Commonwealth Fund for Technical Co-operation (CFTC); and to the Commonwealth Foundation, the Commonwealth of Learning (COL) and the Commonwealth Partnership for Technology Management (CPTM).

COL in Action

Training of Technical Teachers

COL's Technical and Vocational Teacher Training Programme addresses a need that has been identified as being of crucial importance across all Commonwealth regions. Starting with implementation in the Caribbean, a core curriculum has been developed and programme offerings have begun.

Starting in 1992, all Commonwealth Caribbean countries contributed to the core curriculum process and, in 1996/97, four countries were involved administering a pilot. Fifty students were enrolled in the pilot through The Bahamas Hotel Training College, Erdiston Teachers Training College (Barbados), the Vocational Training Development Institute (Jamaica) and Sir Arthur Lewis Community College (St Lucia).

Nine months later when the pilot ended, the total dropout rate was only 18%. This by any measure represents a particularly good retention rate for a distance education programme, but when the logistical problems involved in the implementation of this programme are considered, the result is even more impressive. This was due in no small part to the quality and dedication of the tutors and co-ordinators who were responsible for the programme in their respective territories.

An evaluation of the pilot has recently been completed and the overall assessment was favourable and positive.

In October 1997, a workshop was held in St Lucia, under COL sponsorship, at which tutors and co-ordinators reviewed the learning materials that were used for the pilot. Among the recommendations from the workshop were suggested amendments to the original core curriculum to better reflect the needs of technical teachers as they had evolved since the inception of the project.

Tasks which remain to be addressed are the development of the remaining units and the resolving of accreditation issues. Although systems are being put into place to assist the process of regional accreditation across the Caribbean, difficulties remain. However recognition of the course of studies has been sought elsewhere, and this has first been achieved in Australia, with credit and articulation being offered into Melbourne University's Bachelor of Education and Training, for those who successfully complete the core curriculum.

At the conclusion of the workshop, some of the St. Lucia students who were involved in the pilot received their certificates of completion from the Vice Principal of Sir Arthur Lewis Community College, Mr. Alban Antoine. It was a fitting conclusion to both the workshop and the pilot.

Laboratory technician training

In a continuing collaboration between COL and the Commonwealth Secretariat in promoting the establishment of programmes to provide training for laboratory technicians through distance education, a workshop was convened in November 1997 in co-operation with the School of Pure and Applied Sciences

at the University of the South Pacific (Suva, Fiji).

During this workshop, participants discussed the concept and purpose of a training programme in laboratory techniques, developed syllabuses for such a training programme and reviewed existing learning modules. USP staff also agreed to work with COL and the Secretariat toward implementing such a programme.

The Cook Islands, Fiji, Kiribati, Papua New Guinea, Samoa, the Solomon Islands, Tonga and Tuvalu were represented at the workshop. International resource persons and facilitators also attended.

Non-formal education

Twenty-seven people from 13 countries met late last year in Windhoek, Namibia, to consider the application of appropriate technologies in non-formal education and development communications. Participants representing non-governmental organisations and educational institutions were drawn from both francophone and anglophone Africa. The four-day workshop was co-sponsored by COL and Canada's International Development Research Centre (IDRC) and hosted by the Namibia Ministry of Basic Education and Culture and the University of Namibia's Centre for External Studies.

Beyond the rich sharing of experiences and lessons learned, workshop participants developed six new project proposals in the areas of literacy, basic education, agriculture, vocational skills and community development. These proposals will be advanced to various funding agencies for support. This workshop continued the efforts of COL to explore ways in which distance education methods and technologies can be used for effective non-formal programming.

CEMCA supports WETV

As part of COL's support for WETV's global non-formal education television network (see *Connections*, July 1997), its Commonwealth Educational Media Centre for Asia (CEMCA), has produced a one-hour

documentary television programme on Indian agriculture and the important contributions of rural women.

CEMCA also held an international workshop on developing multimedia courseware, in November 1997, in collaboration with the National Centre for Software Technology and the Commonwealth information technology network, COMNET-IT.

The Centre's newsletter, *EduComm Asia*, is available upon request, directly from CEMCA (52, Tughlakabad Institutional Area, New Delhi 110 062, India.)

COL recognised by WIPO

COL has gained observer status with the World Intellectual Property Organization (WIPO), it's Governing Bodies and Unions. WIPO administers various multilateral treaties among its member states.

From COL's partners

Murdoch University has launched an Internet programme delivery system, *Murdoch Online*, to offer whole degrees, not just units of courses. The first full award courses to be offered will be a certificate in economics and a certificate and diploma in energy studies.

The Indira Gandhi National Open University has signed 25 Memoranda of Understanding with private institutions throughout India. The new "partners" will facilitate access to IGNOU programmes for their students and provide related local services.

Twelve African universities located in Ethiopia, Ghana, Kenya, Tanzania, Uganda and Zimbabwe are now participating in the **World Bank's African Virtual University** project, receiving live lectures from Ireland and the USA, via satellite. Among the participants is the **Open University of Tanzania**, which now serves almost 5,000 students. The university registered its first students in January 1994.



Lewis Perinbam, O.C.

Staff news

Congratulations to COL's Special Adviser (External Relations), **Lewis Perinbam, O.C.**, on being named an Officer of the Order of Canada by **His Excellency the Right Honourable, Roméo LeBlanc**, Governor General of Canada. The honour is well deserved. The citation states: "He is one of this country's most outstanding visionaries in the field of international development. A former vice-president of the Canadian International Development Agency and founder of the Canadian University Service Overseas, he offers fresh insights into the relationships between developing countries and our own. He has launched numerous international aid programmes, which have harnessed the energies of governments, private industry, community groups and churches. Highly respected by his colleagues, he has advanced many ideas that have become models for other donor countries." The Order of Canada is Canada's highest honour for lifetime achievement.

COL's President, **Dato' Professor Gajaraj Dhanarajan**, was presented with the first Asian Association of Open Universities Meritorious Service Award "to the cause of distance education in Asia" at the association's annual conference held last November in Kuala Lumpur. "Apart from his enviable professional accomplishments, Professor Dhanarajan possesses many endearing qualities," states the citation, "He combines the best of Eastern and Western values which make him an ideal person to lead an international organisation [such as COL]."

Angela Kwan joined COL in October 1997 as Executive Assistant (President's Office), supporting new project initiatives in their transition from conceptual stage to concrete work plans ready to be taken up by project managers. Prior to immigrating to Canada in 1996, she was head of administration and accommodation at the Open Learning Institute of Hong Kong.

Gregory Zador joined COL in November 1997, as Project Co-ordinator with responsibility for the development and management of the Canada Caribbean Distance Education Scholarship Programme. Mr. Zador has a background in international development and education programme management through more than 11 years of diverse field assignments with World University Service of Canada.



Mr. Alban Antoine, Vice Principal of Sir Arthur Lewis Community College, presents certificate to Mrs. Christina Belrose, upon completing the Technical Teacher Training Programme (pilot)

Events

Education India: the next millennium

Lewis Perinbam, COL's Senior Adviser (External Relations) addressed a Conference on *Education India: the Next Millennium*, held in Delhi in November 1997.

The Conference, which was attended by about 400 people from all parts of India, including about 40 overseas participants, took a fresh look at India's development needs in the context of a new generation as India stands on the threshold of a new millennium. It provided an opportunity to advance the cause of distance learning before an influential audience that included policy makers, legislators and leaders in the private sector, all of whom will help shape the future course of Indian education. Representing the President of COL, Mr. Perinbam presented a paper at a lively plenary on distance education. The session was dedicated to the memory of one of India's most distinguished sons and distance education visionary, Professor G. Ram Reddy.

Education Secretary Shri P.R. Dasgupta (who serves on COL's Board of Governors) was active in planning the conference, addressed the opening session and chaired the concluding plenary session, at which India's Finance Minister was the main speaker. Then Prime Minister, the Hon. Dr. I.K. Gujral, and Minister for Human Resource Development, the Honourable S.R. Bommai, also addressed the opening plenary.

The Conference was an initiative of Professor Marmar Mukhopadhyay and the All India Association for Educational Technology, with support from the Government of India. Sponsors included several Indian educational organisations, the private sector and the United Nations Fund for Population Activities (UNFPA).

Off-shore partnerships

An international conference on *Off-Shore Partnerships: Twinning Arrangements in Tertiary Education* was organised by Disted College in Penang, Malaysia as part of the College's 10th Anniversary celebrations. The conference was held in November 1997 and chaired by Dato' Dr. Sharom Ahmat, President of Disted College and Regional Adviser to the President of COL for Southeast Asia.

Discussions focused on emerging issues in private tertiary education, including models of twinning arrangements, economics and cost considerations, quality and accreditation, the role of technology in off-shore educational programmes and legislative concerns.

COL was one of the major co-sponsors of the conference (along with the British Council and IDP Australia) and was represented by its President, Dato' Professor Gajaraj Dhanarajan, who also presented the closing summary. Participants at the conference developed a plan to produce a "Guide to Good Practice in Twinning Arrangements in Tertiary Education."

Just prior to the conference, Dato' Sharom was awarded a degree of Doctor of

Laws (*honoris causa*) by Deakin University for his distinguished academic and administrative leadership in the development of Malaysian education.

Junior Summit '98

The Media Laboratory at the Massachusetts Institute of Technology (MIT) is hosting *Junior Summit '98*, a global movement for children to change the future by participating in a six-month on-line forum, centred around a week-long international summit. It is a chance for young people to share ideas, hopes and dreams about creating a better future through the power of technology.

Preceding the November summit, 1000 children between 10 and 16 years of age will be chosen to participate in the global online forum. The 2B1 Foundation will provide the digital means, computers and access to those children who do not have them.

A brochure and entry form has been included in the original mailing of this issue of *Connections*. Further information is available on the Internet at <http://www.jrsummit.net> or through email at info@jrsummit.net.

Upcoming COL meetings

- Open Schooling for Women and Girls—African region: Harare, February 23–27. Her Excellency the First Lady of Zimbabwe, Mrs. G. Mugabe will present a keynote address at the workshop.
- Programme Advisory Committee for Southern Africa—Gaborone, March 10. The meeting will be chaired by the Honourable Dr. Gaositwe K.T. Chiepe, Minister of Education, Botswana.
- The Management of Professional Associations—Gaborone, March 11–13. The workshop will provide training for elected leaders of national and regional distance education associations throughout Commonwealth Africa.
- Foundation Meeting: Commonwealth Electronic Network for School Education—Vancouver, March 12–13. The meeting will bring together representatives of agencies and groups in Commonwealth countries who are actively involved in the development of school Internet services at the national or international levels. They will examine how to link these activities together and build a Commonwealth-wide grid, which all schools will be able to join, and will identify the major elements of added value that such a Commonwealth network could provide. Further information is available on COL's web site at <http://www.col.org/cense.htm>.
- The Use and Integration of Media in Open and Distance Learning—Southern Africa region: Gaborone, March 23–April 3.
- Quality Assurance in Open and Distance Learning—Southern Africa region: Lusaka, April 27–29.

Now available

Training and professional development of distance educators: A Resource book of articles Prepared in co-operation with the

International Centre for Distance Learning (UK Open University), with the financial assistance of the UK Department for International Development, 1997. This is a collection of articles, conference papers and reports on distance educator training activities prepared primarily for use in developing countries where identification of, and access to, relevant literature can be limited. (289 pages)

Requests for COL publications may be sent directly to: COL Customer Service, c/o the Open Learning Agency of BC, 4355 Mathissi Place, Burnaby BC V5G 4S8 Canada; tel: 604.431.3210; fax: 604.431.3381; e-mail: catalogue@ola.bc.ca. Nominal charges apply to orders from *developed, newly developed and non-Commonwealth* countries—usually Cdn.\$12.00 plus shipping. Orders must be accompanied by an institutional purchase order, be pre-paid in either Canadian or US funds, or charged to VISA or MasterCard accounts.

Opening new frontiers for learning: Report of the conference. The very successful international conference on technology and education in Africa was held in Ghana in April 1997. It was jointly sponsored by COL and WorldSpace Inc. and developed in close collaboration with the Ghana Ministry of Education (see *Connections*, April 1997). The report is available from WorldSpace (International Programs), 2400 N Street, NW, Washington, DC 20037, USA; Fax: 202.969.6001; WWW: <http://www.worldspace.com>.



FEBRUARY 1998
Volume 3, Number 1

Connections is published by the Commonwealth of Learning. COL is an international organisation created by Commonwealth Heads of Government to encourage the development and sharing of open learning/distance education resources and technologies.

Chairman:
Dr. H. Ian Macdonald
York University, Canada
President & CEO:
Professor Gajaraj Dhanarajan

Unless otherwise stated, items appearing in *Connections* may be reproduced. Acknowledgement should be made to The Commonwealth of Learning.

Further details on any news item that appears in *Connections* may be obtained by contacting COL's Public Affairs Office, or by visiting our World Wide Web site.

The Commonwealth of Learning
1285 West Broadway, Suite 600
Vancouver, BC V6H 3X8
Canada

Tel: 604.775.8200
Fax: 604.775.8210
Telex: 04507508 COMLEARN
E-mail: info@col.org
World Wide Web: <http://www.col.org>

Connections is edited by
Mr. Dave Wilson.



Welcome to our new educational technology supplement. The field of new technologies and related issues is one of COL's main areas of focus. While the application of *low-cost, appropriate* technologies has always been the priority in COL's work, the newest of technologies are increasingly and rapidly becoming much more accessible and useful.

These pages will review emerging technologies and issues, as well as resources that are available both in print or on-line through the Internet. Your comments and questions are welcome, as are your suggestions and contributions for specific subject areas.

This issue will focus on bandwidth and access.

Bandwidth and access

"Bandwidth" and its effect on access to the Internet is one of the major issues of concern for users. Bandwidth determines the speed that Internet information flows to your computer's screen. A majority of telecommunications in the world today still relies on copper wire, but copper wire networks do not have the capacity to accommodate masses of computer data that high quality images or video clips of only a few seconds require. Therefore, innovations have taken place in the last number of years to help provide higher speed Internet access to both users in urban and remote areas and also to efficiently use the bandwidth that is already available. The following are innovative solutions on both the telecommunications and computer software fronts.

ASDL

In the Canadian provinces of Saskatchewan, Alberta and British Columbia, high-speed Internet access is either being offered or is in the planning stages using a new technology that provides groundbreaking access speeds over standard telephone lines. The service uses a technology known as asynchronous digital subscriber line (ASDL) that offers connectivity up to 50 times faster than the current standard 28.8 kbps modem service—and allows users to talk on the telephone and access the Internet at the same time without need of a second telephone line. Further information at: <http://www.bctel.com/new/adsl.html> and <http://www.sasktel.com/st45.html>



Image Courtesy of WorldSpace

- Each beam covers 14 million square kilometers
- WorldSpace offices in Accra, Ghana; Nairobi, Kenya; and Johannesburg, South Africa
- ✦ Satellite location

GEO satellites

Communications satellites are quickly becoming an important means of accessing the Internet and several companies are hoping to tap into the global demand for bandwidth. The largest of these is Hughes Communications with its technology called DirectPC, which delivers 200 Kbps to 400 Kbps access speeds. All Hughes satellite systems function in Geostationary Earth Orbit (GEO) where the satellites stay in a window about 22,300 miles above the equator. At that particular altitude, satellites will orbit in sync with the Earth's rotation and remain over the same spot.

GEO's satellites, which deliver a signal to a wide area, are best suited for television broadcast. The WorldSpace initiative plans to launch a satellite in mid-1998 into geostationary orbit. The satellite will accommodate the transmission of digital-quality radio programming with the added benefit of visual information displayed on a small LCD panel on a specially designed digital radio. (<http://www.worldspace.org>)

LEO satellites

Soon the possibilities of Low Earth Orbit (LEO) satellite systems will be implemented. The low orbit makes for quick response time and is better suited for real-time communication. Each satellite beams to a much smaller territory of the Earth, therefore LEO networks must deploy numerous satellites in orbital patterns to ensure global coverage at any given time.

One ambitious project is Teledesic Corporation's, "Internet-in-the-Sky", a proposed network of 288 satellites that will provide two-way broadband, voice, data, videoconferencing and high-speed Internet access.

Teledesic will begin selling its bandwidth to service providers such as phone companies, which will in turn link to their own wired or wireless networks. In theory, Teledesic will deliver enough bandwidth to support millions of simultaneous users. The big question, however, is the cost that the user will be charged for access to this high-speed highway in the sky.

Reference: Byte magazine:
<http://www.byte.com/art/9711/sec5/sec5.htm>

Companies with GEO and LEO initiatives:
Alcatel: http://www.alcatel.com/our_bus/telcom/products/space/whatsnew.htm

Hughes Communications, Inc.:
<http://www.spaceway.com>

Lockheed: <http://www.astrolink.com>

Loral: <http://www.cyberstar.com>

Motorola: <http://www.mot.com>

Teledesic: <http://www.teledesic.com>

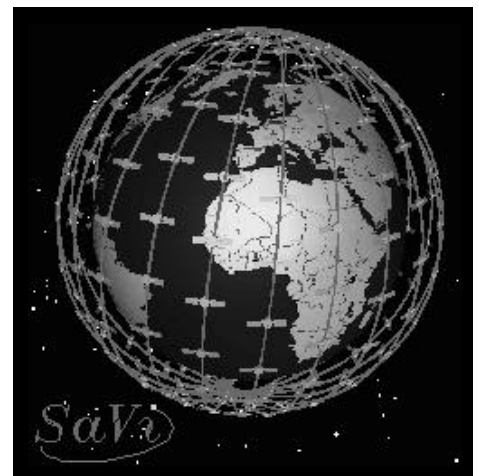


Image courtesy of Teledesic

Using power lines

A Manchester school has become the world's first public user of a technology breakthrough developed by Nortel (Northern Telecom) and Norweb Communications that is capable of delivering Internet and data access for the general public at speeds up to ten times faster than today's fastest home systems.

The technology, which enables electricity companies to deliver Internet and other information services to electricity customers, is attracting significant international commercial interest, with business enquiries from over 150 utility companies, including most of the major power utilities around the world.

The first public installation is at Seymour Park Primary School in Trafford, Greater Manchester, where 12 personal computers have been connected to the Internet by power line. All 12 computers can operate concurrently from just one connection, from which they obtain permanent access to the Internet at speeds of up to 1 megabit per second.

Teachers at the school say that the new technology's high data transfer rate overcomes the practical obstacles to using the Internet as a teaching tool. Headteacher Jenny Dunn, said: "The high-speed connection lets us really take advantage of the educational potential of the Internet. With a normal connection the children could lose interest waiting for pages to download. The new system means information arrives virtually instantaneously, thereby maximising teaching time and keeping children on task. This set up is amazingly flexible in educational terms and gives us the additional medium with which to improve attainment in schools."

Reference: http://www.nortel.com/home/press/1997d/12_11_9797490_UK_School_Norweb.html



Video streaming

The preceding sections dealt with innovations in access and bandwidth on the Internet, but these have direct relevance to cost. Often a user in a developing country, for example, must absorb high communications costs and yet receive little information in return due to the slow speed of connectivity to the Internet provider (such as with a 14.4 Kbps or less modem). Also, the quality of the connection via a lower-grade telephone circuits results in data errors that can cause modem connection speeds to degrade performance even further. Downloading of

video content such as a Quicktime or MPEG clips of 30 seconds in length can not only be torturous for the viewer but in many countries extremely expensive. However, in the last two years "streaming" video across the Internet has become an alternative for those who are ready to sacrifice some image quality for a peace of mind. Educational content that is appropriate for this level of video quality is now being mounted on WWW sites across the Internet.

How does video streaming work? First video data is heavily compressed using a special codec (compression/decompression algorithm) to squeeze as much information as possible into the narrow band. Next, the video files are moved to a server equipped with software using special protocols to "stream" the compressed data (i.e., to send it in a controlled sequential flow of packets) to the client computer that requests the file. Although you must install special software in order to view these files, it is usually available at no charge off the Internet, or included with recent versions of Internet "browsers" such as Netscape or Microsoft's Internet Explorer.

There are several companies that are involved with producing software for video streaming:

RealPlayer (RealVideo and RealAudio) from Progressive Networks: <http://www.real.com>

Vxtreme's Web Theater: <http://www.vxtreme.com>

VDOnet's VDOLive: <http://www.vdolive.com>

Vivo Software's VivoActive Producer: <http://www.vivo.com>

Microsoft NetShow: <http://www.microsoft.com>

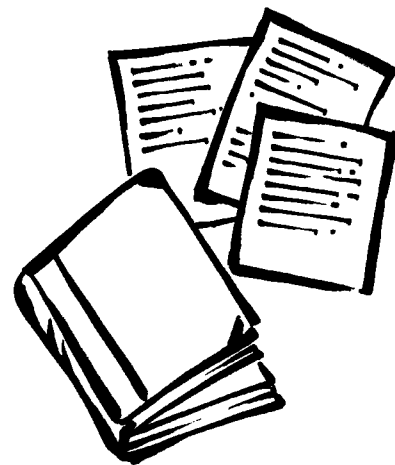
Technology Resources

Books

Cairncross, Frances. **The Death of distance: How the communications revolution will change our lives.** Boston, MA: Harvard Business School Press, 1997. ISBN: 0-87584-806-0 (Hardcover, list: US\$ 24.95) From the Publisher: *This book predicts the ways in which the communications revolution will tilt the balance between large and small, rich and poor, as it transforms many business and government decisions. It is a trendspotter's guide to the twenty-first century.*

Dyson, Esther. **Release 2.0: A Design for living in the digital age.** Broadway Books, 1997. ISBN: 0-76790-011-1 (Hardcover, list: US\$ 25.00) From the Publisher: *Esther Dyson, who has been a leader in the high-tech industry for more than twenty years, explores the impact and implications of cyberspace—its effect on our daily lives, the responsibilities that come with our new powers, and the global issues the Internet creates.*

Howkins, John and Robert Valantin (eds.). **Development and the information age: Four global scenarios for the future of information and communication technology.** Ottawa, ON: IDRC, 1997. ISBN 0-88936-835-X (Pbk., list: Cdn.\$ 15.00) Web: <http://www.idrc.ca/books/835/index.html> From the publisher: *This book offers a glimpse*



into the future of the Information Age. Its brevity and clarity will appeal to all readers interested in development issues and the new information technologies, and will particularly inform policymakers, academics, students, and practitioners in development and information technology worldwide.

Johnson, Steven. **Interface culture: How new technology transforms the way we create and communicate.** San Francisco, CA: Harper, 1997. ISBN: 0-06251-482-2 (Hardcover, list: US\$ 24.00)

Minoli, Daniel. **Distance learning: Technology and applications.** Norwood, MA: Artech House, Inc., 1996. ISBN: 0-89006-739-2 (Hardcover, list: US\$ 69.00) From the publisher: *...Provides a comprehensive analysis of the engineering, business, and regulatory issues affecting this field.*

Porter, Lynnette. **Creating the virtual classroom: Distance learning with the Internet.** New York: John Wiley & Sons, 1997. ISBN: 0-47117-830-6 (Pbk., list: Cdn.\$49.50) From the publisher: *...gets right down to the real issues of the design and management of distance learning programs—giving practical advice on putting together effective courses and programs.*

EdTech News



EdTech News published by the Commonwealth of Learning as a supplement to the *Connections* newsletter.

The Commonwealth of Learning
1285 West Broadway, Suite 600
Vancouver, BC V6H 3X8
Canada

Tel: 604.775.8200
Fax: 604.775.8210
Telex: 04507508 COMLEARN
E-mail: info@col.org
World Wide Web: <http://www.col.org>

EdTech News is compiled by Mr. David Walker (Education Specialist, Educational Technology) and Ms. Sue Parker (Library Technician, Information Resource Centre).

Connections and *EdTech News* are edited by Mr. David Wilson.