

**CURRICULUM VITAE : HEATHER E. HUDSON**

**ADDRESS :**

Professor and Director  
Telecommunications Management and Policy Program  
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**EDUCATION :**

Second year Arts, McGill University.  
B.A., First Class Honours in Honours English Language and Literature, University of British Columbia.  
Research student, London School of Economics.  
M.A. in Communication Research, Stanford University.  
Ph.D. in Communication Research, Stanford University.  
J.D., University of Texas at Austin.

**ACADEMIC AND PROFESSIONAL EXPERIENCE :**

Research on applications and effects of new communications and information technologies, project planning and evaluation, and policy analysis with emphasis on access to new technologies and services, international policy, and the role of telecommunications in social and economic development. Professional experience includes:

Professor, School of Business and Management, and Director, Telecommunications Management and Policy Program, University of San Francisco, 1987 - present. Responsibilities include teaching and research on telecommunications applications and effects, international communications, and communications policy; program management; curriculum development; liaison with academic, professional and business communities.

Coordinator, Evaluation and Learning Systems, Acacia Initiative, International Development Research Centre, 1998-1999. Established evaluation and policy research program for information and communication technology projects in subSaharan Africa while on sabbatical and leave from USF.

Associate Professor, Department of Radio-Television-Film, College of Communication, University of Texas at Austin, 1981 - 1988. Developed program in new communications technologies; taught graduate and undergraduate courses in applications and effects of new technologies, telecommunications policy, and international communication; conducted research on telecommunications and socio-economic development; and advised the university on the expansion of its telecommunications facilities.

Director, Telecommunications Applications, Academy for Educational Development, Washington, D.C., 1979

- 1981. Planned and evaluated development projects using satellites, two-way radio and rural telephony; conducted research on telecommunications and rural development, and directed policy studies for the USAID

Rural Satellite Program. Extensive overseas fieldwork.

Communications Specialist, Academy for Educational Development, Washington, D.C., 1977 - 1979. Provided assistance to the U.S. Agency for International Development (A.I.D.) in development communication project planning, evaluation, and policy. Fieldwork in several developing countries.

Principal Investigator, Research Projects on the Role of Telecommunications in Socio-Economic Development, Keewatin Communications. 1978, 1981. Directed literature review and field research for contracts with the International Telecommunications Union (ITU).

Principal Investigator, Research Project on Northern Broadcasting. December 1976 to April 1977. Directed research for the Canadian Broadcasting Corporation on its Northern Service management requirements and use of the northern short-wave service.

Consultant to the Agency for International Development on Telemedicine. July to December 1976. Prepared report on the U.S. experience in telemedicine, particularly using satellites.

Consultant to the Governor's Office of Telecommunications, State of Alaska. June to September 1976. Member of a research team which carried out an economic study of the Alaska telecommunications industry, directed by Dr. William Melody.

Consultant and Acting Manager for the Wa-Wa-Ta Native Communications Society, Sioux Lookout, Ontario, 1975 - 1976. Prepared broadcast plan for remote northern Ontario, negotiated with common carriers and communication agencies, evaluated community media, and planned a satellite experiment using the CTS/Hermes satellite.

Research Associate, Stanford University. January 1974 to July 1976. Evaluated the use of the ATS-6 satellite for telemedicine in rural Alaska; coordinated evaluation of experiments on the CTS satellite; carried out studies of applications of community media; participated in communication satellite planning for Alaska and Iran.

Evaluator, Northern Pilot Project, Canadian Department of Communications, April 1972 to December 1974. Planned and carried out the evaluation of a project introducing community media in Inuit communities of the central Arctic and Indian communities in northern Ontario. Technologies included HF radio telephones, low-power FM radio broadcasting stations, and portable videotape systems.

Consultant on Northern Communication Policy to the Socio-Economic Branch of the Canadian Department of Communications. July to December 1971. Assessed communication requirements of northern native people in Canada; formulated policy guide-lines for development of northern communication services. Extensive fieldwork in the Arctic and Subarctic.

Consultant to the Policy, Plans, and Programs Branch of the Canadian Department of Communications. June to December 1970. Assessed impact of computer technology and cable television in the "wired city"; conducted a field survey of communication requirements on the Labrador coast.

**AWARDS AND HONORS :**

Sloan Industry Fellowship, Columbia University Institute for Tele-Information (CITI), Columbia Business School, 2003-2004.

Fulbright Asia-Pacific Distinguished Lectureship, 1996, 1997.

USF School of Business Distinguished Research Award: 1990, 1993, 1995, 1997, 2003, 2005.

Honorary Research Fellow, Centre of Asian Studies, University of Hong Kong, 1996.

Senior Fellow, CIRCIT (Centre for International Research on Communication and Information Technology), Melbourne, Australia, 1992.

Fellow, Institute for Communication and Culture, East-West Center, Honolulu, 1991.

University of San Francisco Distinguished Research Award, 1990.

USF School of Business Merit Award for Service, 1990.

Electronic Media Book of the Year Award from the National Association of Broadcasters and Broadcasting Education Association (for *Communication Satellites: Their Development and Impact*) 1991.

*Who's Who in American Education*, 1992 - present.

*International Who's Who of Professionals*, 1996 - present

*Who's Who in The West*, 1995 - present.

Summer Research Award, College of Communication, University of Texas: 1987.

Ford Foundation four year graduate fellowship: Stanford University.

University of British Columbia/Tokyo University exchange scholar.

World University Service exchange scholar.

McGill University entrance scholarship

Government of British Columbia and University of British Columbia scholarships and bursaries.  
.British Columbia university entrance scholarships; gold and silver academic medals.

**PROFESSIONAL MEMBERSHIPS:**

American Bar Association  
Federal Communications Bar Association  
International Communication Association  
International Council for Computer Communication  
International Institute of Communications  
International Telecommunications Society  
Pacific Telecommunications Council  
Society of Satellite Professionals International  
State Bar of California  
Women in Telecommunications

**RESEARCH GRANTS AND CONTRACTS :**

Institute of the North, 2004-5

- Information and telecommunications policies in Arctic regions

Sloan Foundation: Industry Fellow, 2003-2004

- Strategies for increasing infrastructure investment in rural and developing regions

United Nations Development Program (UNDP): 2001

- Internet for developing regions: a public goods analysis

U.S. Agency for International Development (USAID): 2001

- Information and communication technologies for education in developing regions

International Labour Office: 2000

- Role of ICTs in economic development

National Aeronautics and Space Administration (NASA): 2000

- ICT training and technical assistance needs of African countries

Pacific Telecommunications Council: 1998-1999

- rural telecommunications in Alaska

Institute for Information Studies (Joint Program of the Aspen Institute and Nortel): 1997

- research on Internet use in developing countries

ICO Satellite Systems: 1997

- role of satellites in rural socio-economic development

International Labour Office (ILO): 1996-97

- study on the impact of restructuring of the telecommunications sector on telecommunications employment in developing countries

Bay Area Economic Forum: 1995

- Baytrade: research on opportunities for exports from Bay Area telecommunications companies

World Bank: 1992-1995

- studies on rural telecommunications planning for developing countries
- literature review on telecommunications and socio-economic development

Telecommunications Education Trust: 1989-90; 1993-1997

- projects to educate small and minority-owned businesses about telecommunications applications and issues
- minority scholarships in telecommunications

Canadian International Development Agency: 1992-1993

- study on the impact of telecommunications on women in developing countries

Colorado Advanced Technology Institute: 1992-93

- planning for rural telecommunications initiatives

Andrew VSAT: 1992-1993

- study on financing of satellite communications in developing countries

International Telecommunication Union: 1991-92

- study on options for assembly of television sets in Rwanda
- study on planning for introduction of television in rural Rwanda

MCI: 1991

- grant to establish a Center on International Telecommunications

International Communications Association: 1989-1993

- telecommunications curriculum enhancement
- scholarships for telecommunications students

Ford Foundation: 1988-1991

- study on Telecommunications Policy for Rural Development: The State Role; produced book entitled *Electronic Byways*
- study on telecommunications policy for rural development: produced book entitled *Rural America in the Information Age*

U.S. Congress: Office of Technology Assessment: 1989-90

- study of rural telecommunications policies in industrialized countries

University of San Francisco Faculty Development grant: 1989

- study on projects and policies involving telecommunications for regional development in Europe

UNESCO: 1987

- briefing paper on telecommunications systems and services in the U.S.

Office of Technology Assessment: 1987

- briefing paper on communications technologies and services in India.

University of Texas: Policy Research Institute: 1987

- developing country preparations for the 1988 Space WARC

National Council of Churches and U.S. Catholic Conference: 1985-86

- briefing paper for developing countries on satellite policy issues

U.S. Foundation for World Communications Development: 1985

- travel support for research on telecommunications development

Southwest Educational Development Laboratory: 1983, 1984, 1985

- information and the economy: policy issues for educators
- communications technology in distance education

University of Texas: University Research Institute: 1983, 1984, 1985, 1986

- impact of satellite communication in Alaskan villages
- database on telecommunications in developing countries
- growth of the information sector in Texas

International Telecommunication Union: 1981-83

- field studies in Alaska and the South Pacific
- preparation of syntheses of research on telecommunications and development

### **TEACHING EXPERIENCE:**

Professor, School of Business and Management, University of San Francisco. Developed and taught graduate courses in telecommunications applications and management, telecommunications systems planning, international telecommunications, telecommunications policy and strategy, broadband communications, and wireless and satellite communications. Courses have also attracted students from Computer Science, Economics, Education, and Law.

Associate Professor, University of Texas at Austin. Developed and taught courses in telecommunications information systems, survey of new communications technologies, new technologies for education and social services, communications planning, satellite communications, telecommunications policy, and telecommunications in socio-economic development.

Lecturer on International Satellite Policy, International Space University, July 2005.

Guest lecturer, International Telecommunications, Columbia Business School, 2004.

Lecturer, The Transition to Next Generation Regulation, Linne.net Seminar and Global Dialogue on Regulation, Centre for Tele-Information, Danish Technological University, 2003.

Visiting Professor in International Communication, Faculty of Commerce Executive Program, University of British Columbia, 2001.

Visiting Professor, SUNY Stony Brook MA Program in Technology Management, Seoul, Korea, 2001.

Guest lecturer, LINK Centre, School of Public and Development Management, University of the Witwatersrand, South Africa, 1999.

Distinguished Lecturer, Fulbright Program, 1996, 1997: University of Hong Kong; Keio University (Japan); Nanyang Technological University (Singapore); University of Malaysia.

Director and lecturer, U.S. Telecommunications Training Institute (USTTI) course on Global Information Infrastructure, 1995, 1996, 1997.

Lecturer, Executive Education Programs, School of Business and Management, University of San Francisco, 1990 to present.

Developed and presented short courses on "Consumer Issues in Telecommunications Regulation and Policy" sponsored by the U.S. Department of State at:

- Hungarian Technical University, Budapest
- Polish Technical University, Warsaw
- Czech Technical University, Prague.

Lecturer on telecommunications applications, management, socio-economic impact, and policy for:

- Chinese Academy for Posts and Telecommunications Sciences, Beijing.
- International Telecommunication Union
- World Bank
- U.S. Department of State
- U.S. Information Agency.

Visiting Professor, International Space University, Barcelona, summer 1994. Lectured and advised students from more than 20 countries on applications of satellites for health and education.

Visiting Professor, McLaren College of Business, University of San Francisco, Spring 1986. Taught MBA course on international telecommunications and undergraduate conference courses on satellite communications and new communications technologies.

Visiting Professor, American University, Spring 1981. Co-taught course on international communications.

Lecturer, Stanford University, Spring 1975. Taught undergraduate course on the evolution of radio.

Visiting Professor, University of Ottawa, 1972-73. Co-taught two sections of an introductory course in communication.

Acting Assistant Professor, Carleton University, Ottawa, 1972-73. Advised students writing Honours theses in journalism; lectured to various journalism classes.

#### **ADVISORY EXPERIENCE:**

Directed doctoral dissertations and master's theses by Communication students and Business students.

Served on thesis and dissertation committees of graduate students from Business, Economics, Education, Electrical Engineering, Public Affairs, Latin American Studies, and Asian Studies.

#### **UNIVERSITY SERVICE:**

University of San Francisco:

- University Ambassador (top fund raiser)
- University Budget Committee
- University Information Technology Committee
- University Library and Instructional Media Committee
- University Library Dean Search Committee
- University Space Committee
- McLaren School of Business Search Committee Cochair
- McLaren School of Business Faculty Development Committee Chair

McLaren School of Business Graduate Program Committee  
McLaren School of Business Technology Task Force  
Faculty sponsor, Telecommunications Club

**OTHER COMMUNICATION ACTIVITIES AND SERVICE:**

Member of the Board of Directors, Women in Telecommunications (WiT).

Governor, International Council for Computer Communication (ICCC).

Member of the Board of Directors, Developing Countries Farm Radio Network.

Member of the Board of Trustees, Pacific Telecommunications Council.

Member of the Board of Directors, Telecommunications Policy Research Conference.

Member of the Editorial Board:

- *Telecommunications Policy*
- *Information Technologies and International Development*
- *Space Communications.*

Member of the Advisory Board, Bureau on Science and Technology in Development, National Research Council.

Member, Advisory Panel, Office of Technology Assessment study on "Communication Systems for an Information Age."

Member of the Advisory Board, Privacy Rights Clearinghouse. Planning committee for the 25th Telecommunications Policy Research Conference, 1997.

Director, U.S. Telecommunications Training Institute (USTTI) course on "Global Information Infrastructure: Closing the Gap in the Developing World," 1995-1997.

Member of the Advisory Board, Ablex Communication Sciences Series.

Contributing Editor, *Journal of Communication*.

Editorial reviewer, *Telecommunications Policy, Information, Economics and Policy; Utilities Policy; Journal of Broadcasting; Critical Studies on Mass Communication; Journal of Business Communications; Pacific Islands Communications Journal*, MIT Press.

Proposal reviewer, National Science Foundation, Social Science Research Council of Canada.

Founder, Bay Area Telecommunications Forum.

Bay Area Chapter Coordinator, Society of Satellite Professionals International.

Editor of special issue of *Telematics and Informatics* on "Telecommunications and Development: Innovative Strategies."



Member, American Astronautical Society Technical Committee on Space Utilization and Applications.

Member, Technical Advisory Committee, International Association of Satellite Users.

Chairman, Working Group on Political, International and Institutional Considerations, U.S. Advisory Committee for the 1985 ITU World Administrative Radio Conference on the Use of Geostationary Satellite Orbit and the Planning of the Space Services Utilizing It (Space WARC).

Advisor to the International Commission on Worldwide Telecommunications Development (Maitland Commission), sponsored by the International Telecommunication Union.

Chairman, Conference on New Directions in Satellite Communications: Challenges for North and South, sponsored by the College of Communication, University of Texas at Austin.

Special Advisor, University of Texas System Telecommunications Committee.

President, Keewatin Communications (USA) and Keewatin Communications Studies Institute (Canada), non-profit organizations specializing in communication research and planning for social and economic development.

Coordinator, New Communications Technology Exhibit, College of Communication, University of Texas.

Organizing Committee, Pacific Telecommunications Conference, Honolulu, Hawaii.

Organizing Committee, Eighth Annual Telecommunications Policy Research Conference, Annapolis, MD.

Member of the Advisory Committee to the U.S. Delegation for the 1979 World Administrative Radio Conference.

Experience in radio news and public affairs, community radio, freelance photography and journalism.

#### **INTERNATIONAL EXPERIENCE:**

Communication project planning and/or field research in the following countries:

*North America:* U.S.: Alaska; Arctic and Sub-Arctic Canada

*Caribbean:* Barbados, Belize, Guyana, Jamaica

*Latin America:* Argentina, Brazil, Colombia, Costa Rica, Ecuador

*Eastern Europe:* Bulgaria, Romania

*Sub-Saharan Africa:* Burundi, Cameroon, Ethiopia, Kenya, Lesotho, Mali, Mozambique, Namibia, Rwanda, Senegal, South Africa, Tanzania, Uganda, Zimbabwe

*Middle East:* Egypt, Iran, Pakistan, Sudan, Yemen

*Asia:* China, Indonesia, Japan, Korea, Malaysia, Nepal, Philippines, Singapore, Thailand, Vietnam

*Oceania:* Australia, Cook Islands, Fiji, Kiribati, New Zealand, Niue, Solomon Islands, Tonga, Vanuatu, Western Samoa

Fulbright Distinguished Lectureship in Hong Kong, Japan, Malaysia, Singapore; extensions to Philippines, Thailand and Vietnam.

Visiting professor, International Space University, Barcelona.

Lecturer on consumer policy issues in telecommunications and telecommunications for rural development in the Czech Republic, Hungary, Poland and Romania for the U.S. Department of State.

Lecturer on satellite policy and applications for development, World Bank seminar on Telecommunications Policy, Manila.

Lecturer on telecommunications and socio-economic development at the Chinese Institute for Posts and Telecommunications, Beijing.

Lecturer on new communications technologies sponsored by U.S. Information Agency in China, Taiwan, Indonesia, Nepal, Ethiopia.

Lecturer for the International Telecommunication Union at seminars in Brazil, Costa Rica, Togo, Malaysia, Zimbabwe.

Lecturer for Caribbean Association of National Telecommunications Organizations (CANTO) in Puerto Rico and Curacao.

**ADDITIONAL LANGUAGES :**

Good ability to speak, read and write French.

Ability to read and understand spoken Spanish; some knowledge of German.

**CONSULTANT FOR THE FOLLOWING ORGANIZATIONS:**

Academy for Educational Development  
Alaska Governor's Office of Telecommunications  
Alaska Public Broadcasting Commission  
Andrew VSAT Inc.  
Aspen Institute  
AUSSAT (Australian Satellite Organization)  
Belize Telecommunications Authority  
Canadian Communications Research Centre  
Canadian Department of Communications  
Canadian Department of the Secretary of State  
Canadian International Development Agency  
Canadian Radio-Television and Telecommunications Commission  
Central Australian Aboriginal Media Association  
CIRCIT (Centre for Research on Communication and Information Technology)  
Commercial Cargo Space Lines

Commonwealth of Learning  
Consumers Association of Canada  
Consumers Union  
DALSAT Inc.  
East-West Communications Institute, East-West Center, Hawaii  
Equatorial Communications Company  
Ernst and Young  
Government of Indonesia  
Government of Manitoba  
Government of Tanzania  
Independent Commission for Worldwide Telecommunications Development (Maitland Commission)  
ICO Satellite Systems  
Institute of the North  
INTELECON  
International Development Research Centre  
International Institute for Research  
International Institute for Sustainable Development  
International Labour Office  
International Telecommunication Union  
Inuit Tapirisat of Canada  
ITT Industries  
MEDEX Program, University of Hawaii  
National Aeronautics and Space Administration (NASA)  
National Institute of Education  
National Iranian Radio Television  
Nortel (Northern Telecom)  
Philippine Department of Communications and Transportation  
Public Interest Advocacy Centre  
Rural Community Action Program (Alaska)  
Satellife  
Satellite Business Systems  
SNC Limited  
Southwest Educational Development Laboratory  
Teleconsult Limited  
UNESCO  
United Nations Committee on the Peaceful Uses of Outer Space  
United Nations Development Program  
U.S. Agency for International Development  
U.S. Congress: Office of Technology Assessment  
U.S. Department of Commerce: National Telecommunications and Information Administration  
U.S. Department of State  
U.S. Information Agency  
Vermont Telecommunications  
Vitalink Corporation  
World Bank  
Wawatay Native Communications Society

**PUBLICATIONS :**

**BOOKS :**

*From Rural Village to Global Village: Telecommunications and Development in the Information Age.* Mahwah, NJ: Erlbaum, 2006.

*Global Connections: International Telecommunications Infrastructure and Policy.* New York: Wiley, 1997.

*Electronic Byways: State Policies for Rural Development Through Telecommunications.* With Edwin B. Parker. Boulder, CO: Westview, 1992. Second edition: Aspen Institute, 1995.

*Communications Satellites: Their Development and Impact.* New York: Free Press, 1990.

*Rural America in the Information Age: Telecommunications Policy for Rural Development.* Washington, D.C.: University Press of America, 1989. With Edwin B. Parker, Don A. Dillman and Andrew D. Roscoe.

*A Bibliography of Telecommunications and Socio-Economic Development.* Norwood, MA: Artech, 1988.

*New Directions in Satellite Communications: Challenges for North and South.* Dedham, MA: Artech House, 1985 (edited).

*When Telephones Reach the Village: The Role of Telecommunications in Rural Development.* Norwood, NJ: Ablex, 1984.

**BOOK CHAPTERS:**

“Communication and Economic Development.” *Encyclopedia of International Media and Communications.* Elsevier Science, 2003.

“Universal Access to the New Information Infrastructure.” *Handbook of Communications.* Los Angeles and London: Sage, 2002.

“Hardware, Software, Networking, and Connectivity.” With Eric Rusten. *Technologies for Education: Potential, Parameters and Prospects.* Wadi D. Haddad and Alexandra Draxler, editors. Paris and Washington, DC: UNESCO and Academy for Educational Development, 2002.

“From Arctic Village to Alice Springs: Rural Telecom Myths and Realities.” *Networking Knowledge for Information Societies: Institutions & Intervention.* In Mansell, R., Samarajiva, R., and Mahan A., (eds.). Delft, Netherlands: Delft University Press, 2002.

“Toward an Indian Information Economy: Lessons in Telecommunications Policy and Practice.” *Telecommunications Reform in India,* ed. Rafiq Dossani. Westport, Connecticut: Greenwood, 2002.

“Telecentre Evaluation: Issues And Strategies.” *Telecentres for Development.* Vancouver, BC: Commonwealth of Learning, 2001.

“The Acacia Program: Developing Evaluation and Learning Systems for African Telecentres.” *Telecentres for Development.* Vancouver, BC: Commonwealth of Learning, 2001.

"The Role of Information in Rural Development." *Villages in the Future: Crops, Jobs, Livelihood*, ed. D. Virchow and J. von Braun. Berlin: Springer, 2001.

"Extending Access to the Digital Economy to Rural and Developing Regions." *Understanding the Digital Economy: Data, Tools, and Research*. Cambridge, MA: MIT Press, 2000.

"Beyond Infrastructure: A Critical Assessment of GII Initiatives." *Competition, Regulation, and Convergence*, ed. Sharon E. Gillett and Ingo Vogelsang. Mahwah, NJ: Lawrence Erlbaum Associates, 1999.

"New Communications Technologies for Africa: Challenges for Development." *Telecommunications in Africa*, ed. Eli Noam. Oxford University Press.

"Global Information Infrastructure: The Rural Challenge." *The First Mile of Connectivity*, ed. Don Richardson and Lynnita Paisley. Rome: Food and Agricultural Organization of the United Nations, 1998.

"The Paradox of Ubiquity: Communication Satellite Policies in Asia." *Telephony, the Internet, and the Media: Selected Papers from the 1996 Telecommunications Policy Research Conference*, ed. Jeffrey K. MacKie-Mason and David Waterman. Mahwah, NJ: Lawrence Erlbaum Associates, 1998.

"Development and the Globalization of Cyberspace." *The Emerging Internet: Annual Review of the Institute for Information Studies*. Washington, DC: Aspen Institute, 1998.

"Restructuring the Telecommunications Sector in Developing Regions: Lessons from Southeast Asia." *Interconnection and the Internet: Selected Papers from the 1996 Telecommunications Policy Research Conference*, ed. Gregory L. Rosston and David Waterman. Mahwah, NJ: Lawrence Erlbaum Associates, 1997.

"Converging Technologies and Changing Realities: Toward Universal Access to Telecommunications in the Developing World." *Telecom Reform: Principles, Policies, and Regulatory Practices*. Lyngby, Denmark: Technical University of Denmark, 1997.

"Privatization and Liberalization in the Developing World: The Need for New Policies and Strategies." *Privatization and Competition in Telecommunications: International Developments*, ed. Daniel J. Ryan. Westport, CN: Praeger, 1997.

"Universal Service: The Rural Challenge." *Globalism and Localism in Telecommunications*, ed. Eli M. Noam and Alex J. Wolfson. Amsterdam: Elsevier Science, 1997.

"Access to Telecommunications in the Developing World: Ten Years After the Maitland Report." *Toward a Competitive Telecommunications Industry: Selected Papers from the 1994 Telecommunications Policy Research Conference*. Mahwah, NJ: LEA, 1995.

"Toward a National Telecommunications and Information Policy: A Development-Based Vision" *20/20 Vision*. Washington, DC: National Telecommunications and Information Administration, March 1994.

"Applications of Telecommunications for the Delivery of Social Services." In Saunders, Warford and Wellenius, *Telecommunications and Economic Development*, second edition, Johns Hopkins University Press, 1994.

"Maximizing Benefits from New Technologies: Policy Challenges for Developing Countries," in Jussawalla, Meheroo, ed., *Global Telecommunications Policies: The Challenge of Change*. Westport, CN: Greenwood Press, 1993.

"Developing Countries' Telecommunications: Overcoming the Barriers of Distance." *Encyclopedia of Telecommunications*, ed. Fritz Froelich. New York: Marcel Dekker Inc., 1992.

"WARC 92: Issues and Strategies for the Developing World." *Sharing Spectrum in the Digital Age: WARC-92*. London: International Institute of Communications, 1991.

"Communication Technologies." In *Human Communication: Theory and Research*, ed. Gordon L. Dahlke and Glen W. Clatterbuck. Belmont, CA: Wadsworth, 1990. With Frederick Williams and Sharon Strover.

"Ending the Tyranny of Distance: The Impact of New Communications Technologies in Rural North America." In *Competing Visions, Complex Realities: Social Aspects of the Information Society*, ed. Jorge Schement and Leah Lievrouw. Norwood, NJ: Ablex, 1988.

"The Information Sector in the Texas Economy." In *Measuring the Information Society: The Texas Studies*, ed. Frederick Williams. Los Angeles: Sage, 1987. With Louis Leung.

"Satellite Broadcasting in Canada." In *Satellite Broadcasting*, ed. Ralph Negrine. London: Croom Helm, 1988.

"Satellite Broadcasting in the United States." In *Satellite Broadcasting*, ed. Ralph Negrine. London: Croom Helm, 1988.

"Technologies of Communication." In *Communication as a Social Science*, ed. Gordon L. Dahlke and Carlos F. Collado. Belmont, CA: Wadsworth, 1987. With Frederick Williams and Sharon Strover.

"Access to Information: The Developmental Context of the Space WARC." In *Tracing New Orbits: Competition and Cooperation in Satellite Development*. New York: Columbia University, 1986.

"Telecommunications for Health Service Delivery." In R. Saunders et al., *Telecommunications and Economic Development*. Baltimore: Johns Hopkins University Press, 1983. With Robert Saunders.

"The Role of Telecommunications in the Development Process: A Synthesis of Current Research." In *Proceedings of the Tenth Annual Telecommunications Policy Research Conference*, ed. O. Gandy et al. Norwood, NJ: Ablex, 1983.

"Toward a Method for Predicting Development Benefits from Telecommunications Investment." In *Communication Economics and Development*, ed. M. Jussawalla. New York: Pergamon, 1982.

"Medical Communications in Rural Alaska." *Telecommunications in Rural Alaska*. Honolulu: Telecommunications Council, 1982.

"The Role of Telecommunications in the Development Process: Rural Telecommunications in Developing Countries." In *Telecommunications in the U.S.: Trends and Policies*, ed. L. Lewin. Dedham, MA: Artech House, 1981.

"Community Use of Radio in the Canadian North." In *Radio for Education And Development: Case Studies*, ed. Peter L. Spain, Dean T. Jamison, Emile G. McAnany. Washington: World Bank, 1977.

"Access and the Social Environment in the USA." In *Access: Some Western Models of Community Media*, ed. Frances Berrigan. Paris: UNESCO, 1977. With Richard C. Kletter and Larry Hirschhorn.

"Video Cartridges and Cassettes." In *Annual Review of Information Science Number 7*, ed. Carlos Cuadra. Washington, D.C.: American Society for Information Science, 1972. With Richard C. Kletter.

## MONOGRAPHS :

"Universal Access: What Have We Learned from the E-Rate?" School of Business and Management Working Paper Series, University of San Francisco, October 2002.

*Restructuring the Telecommunications Sector: Employment Issues for Developing Countries*. A Report to the International Labour Office, August 1997.

*The Bay Area Telecommunications Industry: Export Opportunities and Prospects*. Report to Baytrade, spring 1996.

*Universal Service: The Rural Challenge: Changing Requirements and Policy Options*. Benton Foundation Communications Policy Working Paper, Washington, DC, 1994.

*Telecommunications Technologies and Development: Opportunities and Challenges for the Next Decade*. London: International Institute of Communications, 1994.

*Phone Facts: A User's Guide to the USF Telephone System*. December 1992; update: October 1994.

*Telecommunications Policies for Rural Development*. Melbourne, Australia: Centre for International Research on Communication and Information Technologies (CIRCIT), September 1992.

*Applications of New Technologies in Distance Education: Telecommunications Policy Issues and Options*. Melbourne, Australia: Centre for International Research on Communication and Information Technologies (CIRCIT), July 1992.

*WARC 92: Issues and Strategies for the Developing World*. London: International Institute of Communications, December 1991.

*TeleFacts Guides*. Telecommunications Guides for Small Businesses. University of San Francisco, 1990.

*Information and the Farm*. Center for Research on Communication Technology and Society, College of Communication, University of Texas at Austin, 1988.

*Access to Orbit: After the 1985 Space WARC*. London: International Institute of Communications, 1986. With D. Demac, G. Coddling, and R. Jakhu. (In English, French, and Spanish)

*Equity in Orbit: The 1985 Space WARC*. London: International Institute of Communications, 1985. With D. Demac, G. Coddling, and R. Jakhu. (In English, French, and Spanish)

*The Role of Telecommunications in Socio-Economic Development: A Review of the Literature with Guidelines for Further Investigation*. Geneva: International Telecommunication Union 1979. With Douglas

Goldschmidt, Edwin Parker, and Andrew Hardy.

**ARTICLES:**

“Rural Telemedicine: Lessons from Alaska for Developing Regions.” *Telemedicine and e-Health*. August 2005, Vol. 11, No. 4: 460-467.

“Investing in Infrastructure: Bridging the Broadband Divide in the Developing World.” *Proceedings of the Pacific Telecommunications Conference*, Honolulu, January 2005.

“Universal Access: What have we learned from the E-Rate?” *Telecommunications Policy*, vol. 28, issues 3-4, April-May 2004, pp. 309-321.

“Rural Telemedicine: Lessons from Alaska for Developing Regions of the Asia-Pacific.” *Proceedings of the Pacific Telecommunications Conference*, Honolulu, January 2004.

“The Role of Telecommunications in Socio-Economic Development.” *Encyclopedia of Telecommunications*, 2003.

“Bridging the Broadband Divide: Strategies for Rural and Developing Regions.” *Proceedings of the ITU Telecom Forum*, ITU Telecom World 2003, Geneva, October 2003.

“From Basic Service to Broadband in the Developing World.” *Proceedings of the Pacific Telecommunications Conference*, Honolulu, January 2003.

“Getting to Broadband in the Developing World.” *Proceedings of the ITU Telecom Forum*, ITU Asia Telecom, Hong Kong, December 2002.

“Solving the Connectivity Problem.” *TechKnowLogica*, January – March, 2002

“Telecommunications Policy under Strain: Toward Universal Access in India.” *Proceedings of the Pacific Telecommunications Conference*, Honolulu, January 2002.

“Toward an Information Economy in the Developing World: Lessons in Telecommunications Policy and Practice.” *Proceedings of the Pacific Telecommunications Conference*, Honolulu, January 2001.

“From Northern Village to Global Village: Rural Communications in Alaska.” *Pacific Telecommunications Review*, Volume 21, Number 2, 1999. With Theda Pittman.

“Universal Access: From Tanana to Timbuktu.” *Rural Communications*, October 1999.

“African Information Infrastructure: The Development Connection.” *Proceedings of Africa Telecom 98*. Geneva: International Telecommunication Union, 1998.

“Global Information Infrastructure: Eliminating the Distance Barrier.” *Business Economics*, April 1998.

“Satellite Strategies and Policies: Lessons from the Asia-Pacific Region.” *Proceedings of the 1998 Pacific Telecommunications Conference*. Honolulu, January 1998.



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"Restructuring the Telecommunications Sector in Southeast Asia: Policies and Pitfalls." *Proceedings of the Pacific Telecommunications Conference*, Honolulu, January, 1997.

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“Getting to GII: Policy Challenges.” Presentation to the annual conference of National Association of Regulated Utilities Commissioners (NARUC), San Francisco, July 1997.

“Global Information Infrastructure: Planning and Implementation.” Presentation at the Telecommunications Policy Research Programme, University of Hong Kong, June 1997.

“Asian Information Infrastructure: Policies and Strategies.” Presentation at Hong Kong Baptist University, June 1997.

“Universal Service in the Information Age.” Presentation at Chinese University of Hong Kong, June 1997.

“Satellite Communications for Development: Opportunities and Challenges for Malaysia.” Presentation for Sarawak Development Institute, Kuching, Sarawak, June 1997.

“Restructuring the Telecommunications Sector in Asia’s Developing Regions: New Market Opportunities.” IIC Telecommunications Forum, Tokyo, April 1997.

“Universal Service in the Information Age.” Workshop on Telecommunications Tariff Policies sponsored by the U.S. Agency for International Development (USAID), Manila, June 1996.

"Telecommunications in Southeast Asia: Issues and Opportunities." California Southeast Asia Business Council Conference, December 1995.

"Toward GII: Closing the Telecommunications Gap in the Developing World." Michigan State University, December 1995.

A Opportunities and Challenges in Rural Telecommunications." Keynote speech. Rural Telecommunications Symposium, Bucharest, Romania, November 20, 1995.

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"Rural Telecommunications in Asia: Toward GII." The *Economist* Conference on Telecommunications Challenges in Asia, Hong Kong, June 1995.

"Opportunities and Challenges in Rural Telecommunications." Aspen Institute Presentation on Capitol Hill, May, 1995.

"Consumer Issues in Telecommunications Regulation and Policy." Weeklong course at Budapest Technical University, sponsored by the U.S. Department of State, March 1995

"Bridging the Gap in Telecommunications Development." First Annual Pan-Asian Rural Telecommunications Summit, Hong Kong, October 1994.

"Telecommunications and Economic Development." Annual Training Conference of the National Association of Development Organizations (NADO), San Francisco, October 1994.



"Telecommunications and Asian Development: Trends and Opportunities." The *Economist* Conference on Telecommunications Challenges in Asia, Hong Kong, June 1994.

"Universal Service in the Information Age." Testimony at NTIA Regional Hearing on Universal Service, Los Angeles, February 1994.

"Universal Service: Access to Information in the Information Age." Technology Summit, Ohio Wesleyan University, April 1994.

"Universal Service in the Information Age." Testimony presented at the NTIA/CPUC Hearing on "Telecommunications to Serve the Cities -- Universal Service in Urban America," Los Angeles, January 20, 1994.

"The State Role in Information Infrastructure: Broadening the Regulatory Vision." Annual Conference of the National Association of Regulatory Utilities Commissioners, San Francisco, CA, July 1993.

"Meeting California's Infrastructure Needs: Broadening the Regulatory Vision." Testimony before the California Public Utilities Commission: Third Telecommunications Infrastructure Full Panel Hearing, Sacramento, CA, July 1993.

"Toward a Telecommunications Policy for California: A Development Based Approach." Testimony before the Senate Energy and Public Utilities Committee: Hearing on the Changing Market Structure in the Telecommunications Industry in California, Sacramento, CA, June 1993.

"Building Electronic Byways: Toward a Development-Based Approach to Regulation." Western Conference of Public Service Commissioners, Anchorage, AK, June 1993.

"Electronic Trails Across the North: New Directions for Alaska." Keynote speech at the Statewide Telecommunications Forum: Visions of Alaska's Future. Juneau, AK, March 1993.

"Electronic Highways and Byways: Rural Development through Telecommunications." Keynote speech at California Telephone Association, Monterey, CA, February 1993.

"Traveling on Electronic Byways: New Directions for Colorado." Keynote speech at Colorado Advanced Technology Institute Rural Telecommunications Conference, Gunnison, CO, November 1992.

"Satellite Communications for Distance Education and Development." Guest lecture, Monash University, Melbourne, Australia, May 1992.

"Using New Technologies for Distance Education." Lecture via satellite videoconference from Yuendumu, Northern Territories, Australia, May 1992.

"Satellite Communications: A Catalyst for Development and Understanding." Keynote address, Borah Symposium, University of Idaho, Moscow, Idaho, March 1991.

"Rural Economic Development: Upgrading the Telecommunications Infrastructure." Presentation to the Sixth Conference on New Directions for State Telecommunications Regulation, Salt Lake City, Utah, February 1991.

"Telecommunications and Development: Five Years after the Maitland Commission." Keynote address, National Telecommunications Forum, University of Colorado, Boulder, November 1990.

"Rural America in the Information Age: Opportunities and Challenges for Development." Keynote address, Pennsylvania Public Television Network Conference on Rural Telecommunications, Hershey, PA, April 1990.

"Restructuring Telecommunications in Developing Countries." Presentation at the Emerging Link Conference sponsored by the National Telecommunications and Information Administration (NTIA), Atlanta, March 1990.

"Telecommunications: The Economic Edge." Missouri Telephone Association Conference, November 1989.

"Bringing the Information Age to Rural America." Presentation to the Consumers Federation of America annual conference, Washington, D.C., October 1989.

"Telecommunications for Rural Development." Presentation to the Texas Rural Telephone Cooperative Association, Lake Tahoe, Nevada, December 1989.

"Industry Initiatives and Other Approaches: A Comparative Analysis." Telecommunications Publishing Group Conference on State Telecommunications Regulation, Washington, D.C., September 1989.

"The Future of Telecommunications in Europe and the Pacific Rim." AT&T International Telecommunications Symposium, Pleasanton, CA, May 1989.

"Technology and Rural Policy." Lecture at the Berkeley Rural Development Seminar, University of California at Berkeley, April 1989.

"Current Applications of VSAT's in the United States." Brazilian Society of Satellite Professionals, Rio de Janeiro, April 1989.

"Telecommunications and Socio-Economic Development." Week-long series of lectures for the Academy of Posts and Telecommunications Sciences, Chinese Ministry of Posts and Telecommunications, Beijing, June 1986.

"Information Technologies for Education and Development." Lecture at the Institute for Information Industries, Taipei, Taiwan, May 1986.

"National Sovereignty and Access to Information: Policy Dilemmas Posed by New Technologies." Lecture at the Ministry of Information, Government of Indonesia, Jakarta, June 1986.

"The Potential Role of Satellite Communications for Development in Colombia." Seminar on Domestic Satellite Systems sponsored by the Colombian Ministry of Communications, Bogota, January 1985.

"Telecommunications and the Developing World." Colloquium sponsored by the Department of Telecommunications, Barry University, December 1984.

"Satellite Communications for Development." Distinguished Lecture Series, Center for Advanced Study of International Development, Michigan State University, May 1984.

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"Satellite Communications for Development." Annual Conference on International Affairs, University of Colorado at Boulder, March 1984.

"Careers for Women in Telecommunications." Colloquium of the Interdisciplinary Telecommunications Program, University of Colorado at Boulder, March 1984.

"The Role of Telecommunications in Development: Implications for Policy." Seminar on Information Economics and Policy, Hubert Humphrey Institute for Public Affairs, University of Minnesota, February 1984.

"Development Policy Issues in Satellite Communications." National Council of Churches, New York, February 1984.

"The Role of Telecommunications in National Development." Colloquium of the Interdisciplinary Telecommunications Program, University of Colorado at Boulder, April 1982.