CONSORTEL Languages Project to Complete a Catalogue of Telidon Educational Applications

Telidon, the Canadian videotex system, has passed its market trials and field tests with flying colours. It is now achieving maturity as an electronic medium for the creation, storage and interactive use of text and graphics. It has been standardized (as NAPLPS, the North American Presentation Level Protocol Syntax), dozens of companies have come into being to generate and market support hardware and software, and agencies throughout Canada are exploring innovative applications for it.

One promising realm of Telidon implementation lies in the field of education. The graphics protocol lends itself readily to computer-assisted instruction and interactive learning packages, to testing modules, distance education, and information retrieval. Teachers and students can use standard telecommunications systems to access remote educational databases. Increasingly, educational material using the Telidon protocol is also mounted on local multi-user systems, or on stand-alone microcomputer systems. The adaptation of popular, inexpensive microcomputers to Telidon through software and hardware peripherals makes Telidon/NAPLPS a particularly versatile and affordable educational tool. Telidon is easy to use, and the existence of a standard format means that courseware can be easily exchanged between institutions.

In the interests of promoting the widespread development and use of educational material based on Telidon, CONSORTEL (the Consortium for the Exchange of Telidon and Telematics Materials) is introducing a quarterly catalogue.

CONSORTEL is a consortium of some fifty colleges, universities, public libraries and other interested non-profit organizations, under the overall direction of the Inter-Provincial Association for Telidon and Telematics (IPATT). The consortium is establishing a prototype electronic network which should be operating by 1985. Beginning this fall, the **CONSORTEL Catalogue** will help to inform educators at all grade levels across Canada about Telidon products for education. The catalogue will list and describe courseware and lessonware, Telidon educational projects, software and hardware products that permit the implementation of educational material based on Telidon, and related papers and reports. The catalogue will serve as a key forum for the exchange of information, experience, and references in this dynamic field, and will represent the first national consolidation of information about the educational uses of Telidon technology.

The accuracy and completeness of the **CONSORTEL Catalogue** depend upon material submitted by contributing agencies. If you are working with Telidon for instructional purposes, CONSORTEL would like to hear from you. Whether you are designing courseware, generating other pages of educational content, participating in a project or trial, or drafting support material, descriptions of your work will be of great interest to the consortium. For further information on contributing to the **CONSORTEL Catalogue**, please don't delay in contacting:

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Conferences

Edinburgh, Scotland, June 11, 1984 -- Many universities are graduating students who can neither participate in, nor understand the technological revolution that is shaping our future, said Roy T. Cottier, senior vice-president, corporate relations, Northern Telecom Limited, to an audience at the University of Edinburgh today.

Mr. Cottier was speaking at a ceremony to announce the first simultaneous joint seminar between two universities, in Canada and the United Kingdom. The seminar, which includes the world's first video conference satellite link between two major universities, will take place on October 26-27, between the University of Edinburgh, Scotland, and Carleton University, in Ottawa, Ontario.

The seminar is the first in a series of five annual programs entitled Technology, Innovation, and Social Change. They are being co-sponsored by the Centre of Canadian Studies at the University of Edinburgh, and the Institute of Canadian Studies at Carleton University in Ottawa.

Northern Telecom Limited is providing $60,000 to cover general conference costs, the satellite link, and the purchase of equipment for the initial seminar.

In his remarks, Mr. Cottier reminded his audience of the "two cultures," first described by C.P. Snow in 1959. Lord Snow used that term to describe the cultural and intellectual barriers that had increasingly divided students of science from those in the humanities.

Mr. Cottier noted that, 25 years later, this condition has become even more acute. At a time when the need for technological awareness has increased, the educational system continues to deny students in the humanities a complete, "balanced" education.

"The undergraduate curriculum, as it generally stands today, perpetuates the gap in knowledge between the humanities and the sciences," Mr. Cottier said. While there are, indeed, efforts to change this, through a variety of local programs, these rarely go beyond installing a few microcomputers in the classroom.

Much more is needed than merely providing students with a basic level of microcomputer literacy, Mr. Cottier warned. "Students also need to be taught the essential principles of quantitative and analytic though that are fundamental to science and engineering; principles which, when you think about it, are also basic to a good liberal arts education."

Universities must not only accommodate necessary changes in curriculum, said Mr. Cottier, but they must also participate directly, as institutions, in an increasingly technological environment.

"Part of that participation must include studying, teaching, and applying the new information technology," he argued.

"The sad fact is that universities, in general are **not** in the vanguard of the information technology revolution. But they should be, for information is their lifeblood."

The series of Edinburgh-Carleton seminars on the social impacts of technology and innovation can do much to highlight this need, Mr. Cottier said. The seminars will demonstrate the academic application and use of the new information technologies, and will be "a landmark in Canadian Studies and one of the most innovative university programs directed towards one of society's most compelling problems and opportunities."

Northern Telecom is the second largest designer and manufacturer of telecommunications equipment in North America and sixth in the world. It is the world's largest supplier of fully digital telecommunications systems, and is a significant supplier of integrated office systems. Revenues in 1983 exceeded $3.3 billion. It employs more than 40,000 people throughout the world and has research and development facilities, and 46 manufacturing plants in Canada, the U.S., United Kingdom, Republic of Ireland, Malaysia, and Brazil. Its common shares are listed on the Montreal; New York; Toronto; Vancouver; and London, U.K. stock exchanges.

AECT Publishes Book on Software Copyright

As the number of computers in schools has increased, quality in the production of instructional computer software has become a major issue. How that quality can be improved is the subject of much debate, as is the issue of software piracy, which seriously threatens the software market.

Software developers and producers themselves readily admit that there is lamentable room for improvement in the quality of instructional programs now available for classroom use. Helm Last year, AECT and the National Institute of Education brought software producers and educators together at the National Conference on Producer-Educator Perspectives on Educational Software. The candid discussions between these two factions brought to light all viewpoints essential for a thorough and scholarly treatment of the subjects of quality and copyright. It was decided that a book on this important subject should follow.

Author Virginia Helm is associate professor of educational administration at Western Illinois University where she teaches school law. Her doctorate in administration was completed at the University of Iowa, where she became interested in the use of computers in the classroom. The University of Iowa is noted as a leading university in applying computers to teaching and learning.

A small but growing body of research on the effectiveness of computerassisted instruction...indicate that when compared to traditional classroom instruction, computers improve both the level of achievement and the rate of learning for many students. Helm In her book, Helm defines the problem of instructional software quality, examines the accompanying problem of copyright violation, carefully explains the law, tells you how to use software in the schools legally, and how to control piracy.

Valuable appendices follow. A definitive paper presented at the AECT/NIE conference by prominent Washington copyright attorney Daniel T. Brooks, entitled "Fair Use of Educational Software," is included in its entirety.

So-called "fair use" is an aged, judicially developed defense to an action for copyright infringement. Copyright is now **automatic** in **most** computer programs. Brooks Brooks discusses ownership and transfer of copyrights and exclusive rights to computer software and describes the amount and substantiality of portions of software that can be used without infringing on copyright.

The book includes in other appendices a policy statement on network and multiple machine software developed by the International Council for Computers in Education (ICCE), as well as guidelines for off-air recording and a sample of such successful software licensing agreements as that developed by Sarasota, Florida, Board of Education.

Copies of the book are $16 each, $13.50 for AECT members. Order through the AECT Publications Department, 1126 Sixteenth Street, NW, Washington, DC 20036. (1984, hardcover, 6 x 9, 152 pp, ISEN 0-89240-047-1, LC 84-81566)

New Literature

For those interested in making contacts in the United States, the Far West Laboratory for Educational Research and Development recently published a **1984 Directory of Resources for Technology in Education**. State by state, the directory lists relevent government offices, associations and resource organizations (including for example, ComputerTown affiliates and National Diffusion Network members). Other lists cover national organizations, institutions offering degree programs in educational technology, computer camps, funding sources and hardware companies, all throughout the U.S.A. An added feature is a listing of educational technology periodicals, computerized databases and electronic bulletin boards. Annotations are provided describing many of these information resources. By this point in time, listings of 1984 conferences and summer institutes are not helpful, but one may wish to put in an early order for proposed future editions of the directory to ensure timely information. At present, Canadian and international contacts are not included, but the compilers invite any organizations not listed to send information for future editions. Perhaps Canadian organizations will be considered, as no particular criteria for listing are given. The compilers have admitted however, to a preference for resources in the areas of microcomputing and instructional television, a preference unfortunately not specified in the directory's title. Persons wishing to order a copy of the directory, or to submit information, may write to the Technology Learning Center, Far West Laboratory for Educational Research and Development, 1855 Folsom Street, San Francisco, California 94103.

The topic of microcomputers has dominated the literature of education throughout the past year, and has served as the theme for many published collections of papers. The National Council of Teachers of Mathematics took up this theme in their 1984 Yearbook entitled **Computers in Mathematics Education**. This collection of twenty-seven papers is divided into five main sections: Issues, The Computer as a Teaching Aid, Teaching Mathematics through Programming, Diagnostic Uses of the Computer, and Bibliography. Although all papers focus on the realm of mathematics education, there are certainly several which could provide bases for much wider consideration: "Computers: Challenge and Opportunity" by Elizabeth Glass is essentially an overview of educational computing; William Kraus in "The Computer as a Learning Center" discusses basic elements of design for a computer-oriented learning centre; Richard Shumway's "Young Children, Programming, and Mathematical Thinking" addresses a general need for computer literacy. Most papers include a reading list, however the Yearbook's last offering is "Computers in the Classrooom: a Selected Bibliography". The bibliography describes almost 100 recent articles and books on the computers-in-math theme, each item being coded as to what mathematical topic, computer language or teaching level it addresses. **Computers in Mathematics Education** must be ordered from the NCTM, 1906 Association Drive, Reston, Virginia 22091.

Readers of the **Educational Communication and Technology Journal** may wish to look at a paper presented at the 1984 Association for Education Communication and Technology Annual Convention by Bill Winn of the University of Calgary. The paper entitled **ECTJ and Research in Educational Technology** attempts to put educational technology research into perspective, and to define within that, the role of this influential journal. Winn is able to pinpoint three main areas of study for educational technologists: instructional theory, analysis of practical tasks and decision-making techniques. He expresses some dissatisfaction that the bulk of **ECTJ**'s content represents only the area of instructional

TABLE 4

STUDENT RESPONSE TO THE USE OF TELIDON DELIVERED TESTS IN COURSE IN ORNOTHOLOGY N = 15

1. Is this the first time you have taken a test using Telidon?	Moderately easy to use	100%
	Yes	100%
	No	-
2. Did you have any problems with the system?	Yes	53%
	No	47%
3. What was your reaction to this technology?	Very easy to use	40%
	Moderately easy to use	60%
	Difficult to use	-
	Very difficult to use	-
4. Was the test...	too long?	20%
	too short?	27%
	right length?	33%
	no answer?	20%
5. What was your impression of the graphics used?	added significantly?	33%
	useful	60%
	not very useful	7%
6. Was the display time...	much too slow?	-
	too slow	20%
	acceptable	73%
	very good	7%
7. How did you find the graphic depiction of content?	inaccurate	7%
	some uncertainty	33%
	acceptable	47%
	accurate	13%
8. Was the wording of question easy to understand?	Yes, very	27%
	Yes, fairly	60%
	No, confusing	7%
	uncertain	7%
9. Would you like to have access to this material during the semester as a self-testing aid?	Yes	93%
	No	7%

III. Discussion and Implications

While the two uses of the Telidon system reported here (agricultural extension and instruction) may appear unrelated to distance education, it is in combining the findings of both studies that some guidance may be offered for distance education planners.

The agricultural extension field trial with GRASSROOTS revealed that it is possible for a university to collaborate with a commercial electronic publisher to their mutual advantage. The University was able to get up to spped in a very short period of time without the capital and operating expense associated with a major database delivery system and network. The system operator gained access to a region otherwise difficult to enter. It also gained experience in the design of action task software not then in use by the company. Ongoing working relationships were established which make it possible, subject to agreement on specific applications, for the GRASSROOTS system to serve a number of distance education projects. The existence of the GRASSROOTS network, relative ease of access, and economy of use should not be overlooked by other institutions interested in this technology for distance education. The analogy here is using the railway company to transport goods rather than building your own railroad or highway system.

Secondly, from the agricultural field trial

emerged confirming evidence that Telidon is an easy-to-use home service for otherwise inexperienced computer users. This confirmation was also received from the specific on campus instructional applications. Furthermore, while there were technical reliability problems, they are of sufficiently short duration or limited frequency as not to man the general acceptability of this service for home based information access to extension and distance education resources.

Two major hurdles, however, were identified in the agricultural field trial which are of intense importance for distance education. The first is the entry cost of the terminal. A Telidon dedicated terminal with decoder, monitor and 1200 bps modem costs in the vicinity of $2,000 and is a single purpose device. An IBM PC type microcomputer with the necessary software decoder, colour board and modem will cost in the vicinity of $5,000 although the educationally priced IBM PC Jr can be put in service with a Telidon configuration for less than $2,000. The microcomputer decision will, for many potential distance education users, be based on more broadly defined needs than for the use of Telidon access. With costs of this magnitude and the elusive low cost TV Telidon adaptor not yet in sight one is led to conclude that the population of home access terminals is not yet sufficient to warrant major investments in creating Telidon materials for distance education. "How will the students access the data?"

The second major hurdle is regional in significance and has to do with the availability and cost of telecommunication services. In parts of Western Canada telephone line charges established for Telidon by the Government operated telephone companies are extremely reasonable at 5 cents per minute in Manitoba and 6-8 cents per minute in Saskatchewan. In contrast, Eastern Canada has no such provision with regular voice tariffs costing at least 50 cents per minute. In addition rural phone lines are frequently party lines and the attachment of data terminals to such lines is not permitted. The arrangement Infomart has made with Bell Canada for a special INET rate of 25 cents per minute in dialing area 519 is a move in the right direction but its cost structure will inhibit all but short access sessions by the majority of individual users. The recent breakup of AT & T in the United States is resulting in rate increases for some institutionally provided distance education services which threaten the continuance of these services at least in present form. Since Canada is moving in a similar direction with telecommunications policy, potential applications of Telidon to distance education should examine this dimension carefully and then proceed with caution.

From the instructional applications reported it can be seen that there is poten-

tial for Telidon as an effective, user friendly and student accepted system. If the terminal problem and the costs of telecommunication can be resolved within a specific distance education project than our evidence suggests that Telidon is the only presently available practical method of displaying detailed graphic and textual information using a range of colour. It appears to provide intrinsic motivation to students when properly used.

The Guelph trials, unlike the educational television panacea projects of the 1960s, undertook to limit the scope of the application of Telidon to one or two specific aspects of the course. The project team worked with an educational philosophy which sought to emphasize student performance and output rather than teacher input. Most earlier media approaches have concentrated on information input, i.e. the more senses you use the more you can share in. Knowledge of what is expected, student practice and awareness of achievement through feedback on performance seem to the author to be the most fruitful areas for improving student learning. The Keller PSI method and other approaches which emphasize learner responsibility, especially in post secondary and distance education, have demonstrated that such improvement is achievable. These methods, however, are costly in providing intensive and frequent feedback and often result in compromises which reduce the immediacy of the feedback and hence much of its educational power. It is in this era where the Guelph trial concentrated its study of Telidon and where its initial success occurred.

Conclusion

The potential for Telidon in distance education lies more in the quality of the instructional design decisions than in the technology. This has always been the case with educational media but the novelty of another system can blue one's vision of what comes first, purpose and plan or tool. There are many existing forms in which course content for distance education can be delivered. The test, the audiocassette, printed or film slide illustrations, all can deliver content at a fraction of the cost of Telidon or other computer based systems. What they cannot do as effectively nor as effeciently is provide students at a distance with frequent short tests of learning achievement and immediate feedback. It is in identifying similar limited segments of distance education delivery where Telidon can make a useful contribution.

NOTE Based on the difficulty of serving larger numbers of students on campus from a distant database, the University of Guelph and Tayson Information Technolgy have developed a standalone IBM PC based system, VITAL (Videotex Integrated Teaching and Learning System for Education and Training).

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MEDIA NEWS

theory. As editor of that journal, Winn is certainly in the position to assess trends in content. Perhaps prospective authors/researchers in the field will answer his call for more papers on the topics of analysis and design, as well as the social aspects of educational technology. Copies of this conference paper may be found in the ERIC document collection as ED 243 440, or ordered from the EDRS (ERIC Document Reproduction Service). Note that EDRS has a new mailing address: 3900 Wheeler Avenue, Alexandria, Virginia 22304. The Association for Educational Communication and Technology (and **ECTJ**) may be contacted at 1126 Sixteenth Street NW, Washington, DC 20036.

CALL FOR PROPOSALS

A major Secretary of State funded project is soliciting proposals from individuals interested in contributing secondary curriculum materials or research papers on transportation and communication. It is expected that, based upon proposals submitted, persons selected to contribute will include teachers, college instructors, university level researchers, and other writers and researchers.

Materials to be developed will discuss the social, political, cultural, and/or economic aspects of transportation, resource extraction transportation, broadcasting and new communication technologies. Much,

although not all, of the work commissioned is expected to be regionally informed, nationally significant case studies.

Small research grants ($500-1000) will be available to selected individuals. Opportunities will be available for contributors to attend coordination meetings and/or workshops/symposiums in August, 1986, Expo year in Vancouver. The project will publish selected materials in either one of four teacher/learning booklets or a monograph. Selection of contributors will be made in January 1985.

For more information contact:

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ICEM CONFERENCE

tain, Nigeria, Switzerland and the U.S.A.

The theme of this year's conference was "Educational Technology to Enhance Learning at a Distance". The program for each day consisted of a number of speakers followed by a symposium involving the speakers for that day. All of the program events were plenary session, with simultaneous translation between English and French being provided over headphones. A wide variety of topics was presented along the theme of Distance Education:

Think before you leap: How to reduce problems in Distance Education (Dr. Bill Winn, University of Calgary)

Extending opportunity: Telidon technology in Vocational Education (Amelia Turnbull, Alberta Correspondence School)

Educational Teleconferencing (Dr. G. Barry Ellis, University of Calgary)

Educational Technology to enhance learning at a distance: a systematic approach (Dr. Ron J. McBeath, San Jose State University)

New Realities in Educational Communications (Peter L. Senchuk, ACCESS Alberta)

Clearinghouse for Computer Software (Dr. S. Jim Thiessen, General Systems Research Ltd., Edmonton)

Technology in Distance Education: Improving Man's humanity to Man (Dr. John S. Daniel, Laurentian University)

By Making too many technological turns, one ends up going around in circles (Andre Hebert, University of Quebec)

The TV Ontario Academy on Computers in Education - a Canadian distance-

learning system: Bits and Bytes (Don Robertson, TV Ontario)

Distance Education: the Nigerian experience (Francis Z. Gana, Ministry of Education, Lagos)

Format: Canada's National audiovisual information system (Donald Bidd, National Film Board, Montreal)

Satellite Communications: Past Present and Future. (W. Terry Kerr, Department of Communications, Ottawa)

Telidon: its use in Distance Education (Dr. Robert A. Abell, Alphatel Systems, Edmonton)

Among the many AMTEC members attending the 1984 ICEM conference were president Bill Hanson, immediate past-president Barry Brown and president-elect Ed Crisp. President Bill addressed the session on the morning of the second day of the conference, bringing greetings on behalf of AMTEC and describing its function to the interested delegates.

The chairman of the ICEM 1984 Conference was Hans Kratz of Alberta Education. (Many will remember him as chairman of the highly successful AMTEC Conference held in Edmonton in 1979.) Hans took care of every detail including the weather, which was perfect. After this experience let us hope that the Council decides to meet again in Canada before too long. ICEM was founded in 1950 under the name of International Council for Education Films; the name was changed in 1966 to International Council for the Advancement of Audiovisual Media, and in 1980 to International Council for Educational Media. ICEM enjoys Consultative Status, type A, from UNESCO, through the International Film and Television Council, and maintains a secretariat in Paris, France.

COMPUTER COMMUNICATION

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