with Telidon as an agricultural extension medium as well as an instructional medium. From the beginning, the committee was aware that videoconferencing is a learning environment, and that the incorporation of the computer into the instructional environment was an attempt to bring a more personal element to the instructional process.

The videoconferencing began in October 1983 with a demonstration of a “Sire Selector” program. The demonstration involved two Ontario farmers, one from the University of Guelph and the other from the Ontario Veterinary College, using Telidon to select sires for their herds. The farmers were able to communicate with each other and with the program’s developer, Dr. Jack Pearson, a professor at the University of Guelph. The demonstration was a great success, and it was decided that the program should be made available to other farmers in the region.

The next step was to develop a database of farms in the region and to provide access to the database through Telidon. This was done in cooperation with the Department of Agriculture and Food, who provided the necessary computer hardware and software. The database included information on the farms’ production practices, including the use of different breeds of cattle, the use of specific feed additives, and the use of different management techniques.

The database was piloted in the fall of 1984, and it was found to be a valuable tool for farmers. The farmers were able to compare their own production practices with those of other farms in the region, and they were able to learn about new technologies and management techniques. The database was also used to support research on the impact of different management practices on farm profitability.

In the fall of 1985, Telidon was used to provide a variety of services to farmers in the region. These services included the provision of technical assistance, the provision of information on new management practices, and the provision of access to new technologies. The services were provided on a cost-recovery basis, and they were well received by the farmers. The success of the service led to the development of a number of new services, including the provision of access to a variety of agricultural extension programs, and the provision of access to a variety of agricultural information services.

The success of Telidon in the region led to the development of similar services in other regions of the province. In the fall of 1986, Telidon was used to provide a variety of services to farmers in the western part of the province. These services included the provision of technical assistance, the provision of information on new management practices, and the provision of access to new technologies. The services were provided on a cost-recovery basis, and they were well received by the farmers. The success of the service led to the development of a number of new services, including the provision of access to a variety of agricultural extension programs, and the provision of access to a variety of agricultural information services.

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ed to deliver television signals over a large geographical area with signals to be received by cable television. Presently 140 communities in British Columbia are able to receive Knowledge Network transmissions. In November 1982, there were 375,000 receiving sets in the province. In addition, some communities in the Yukon and Northwest Territories, Alberta, and the United States are able to tune in to Knowledge Network transmissions.

The Knowledge Network provides educational and general interest programming via satellite and closed-circuit television to over 1 million persons in British Columbia. The Knowledge Network is not a separate Distance Education institution, but a different form of broadcasting to a separate Distance Education institution, when the existing educational structure in the province is not able to provide the educational opportunity for the cooperation and provision of services users in Alberta, Saskatchewan, and Manitoba. The Knowledge Network is thus not a separate Distance Education institution, but a different form of broadcasting to the province's universities, colleges, and other educational institutions.

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Conclusions

As can be readily noted from this brief overview, there are many forms of satellite communications that have primarily been developed to provide educational opportunities to the first year university courses (USP, UWI, Knowledge Network) in-service teacher training (TFTS, USP, Knowledge Network), in-service professional training (e.g. agriculture, health; UWI, Indonesia, KN), non-formal education at all levels was attempted in both the Canadian and Indonesian projects and countries to project administration and the appropriate ID and password, which would allow access to the instructional materials by a different instructor and the Problem solving necessary to further development of the system described worked reasonably well in this phase of its academic career.

Table: Response rates to TELIDON

| Number of enrolled students | Response rate |
|-----------------------------|--------------|
| 25 | 3 % |
| 35 | 12 % |
| 45 | 18 % |
| 55 | 26 % |
| 65 | 33 % |
| 75 | 40 % |
| 85 | 47 % |
| 95 | 53 % |
| 105 | 59 % |

The above results come from two different types of students. The Neuroanatomy course is a four-year program and the Introduction to Psychology course which enrolled majors and the high level of positive response may be associated with the students having more experience with the various methods of teaching and learning. The TELIDON materials were designed for the first year Veterinary Medicine students and were used by them in the previous semester. This course was not offered in the Winter Semester and the students were not available at the time of the survey. This content of the Biological Sciences' course is similar to the Veterinary science course. The use of the TELIDON test materials by a different instructor and the positive acceptance by the students suggest an interesting example of sharing and exchange of costly resources.

The TELIDON course was presented a different student group. Here first year veterinary students were regarded as more flexible and more dualistic in their thinking. (Ferry, 1970). They do not have the same level of experience with a variety of methods as upper class students. As a group, they were more to the point in finding out whether TELIDON medium than the fourth year students, and were generally more secure with its educational value. While those expressing negative views of its use in marked examination are approximately the
same as in the fourth year group a significant minority were uncertain. This suggests some caution in using "high tech" systems with students who may be generally insecure in a new environment. This has implications for distance education where the human factor is even more remote than in an anonymous class of 600.

Table 2

| Advantages | Disadvantages |
|------------|---------------|
| clearer | limited variety |
| better pace | monochrome CRT |
| more objective | result presented |
| self-pacing | computer text |
| stimulates recall | response time |

These students responses show a recognition of positive attributes in the human learning domain for this type of automated study system. The items on the "disadvantages" side are those which fortuitously are addressable. Some of these are technical and relate to the choice of equipment, e.g. slow response times. But the majority of negative points relate to matters of instructional design such as the sequence of tests related to the course syllabus, the triviality of limited variety of test items or the question of spelling and the handling of wrong answers. In free form comment students remarked upon its "excellent aspects of colours and visual accuracy", "most impressive motivating factors", "good visual representations" and "the graphics are great especially for non-native speakers".

A second study was conducted by Herrmann (1984) among 303 students in a course in "Behavioral Aspects of Drug Action". This course treats information from the fields of pharmacology, psychology and psychiatry. The course handouts come from a variety of backgrounds and include a number of continuing adult students. The course is offered in the evenings which makes it the type of course eligible for consideration in a distance education mode.

Recent approaches in the Department of Psychology have focused on the learner rather than on the teacher. It has emphasized methods applied to produce measurable improvements in student retention and attainments. Among the approaches used has been the Personalized System of Instruction (PSI) developed by Keller (1968). This approach has been found to show improvement in student performance and increased student satisfaction (Lippmann and Herrmann, 1982). However, in the "Behavioral Aspects of Drug Abuse" course, while the introduction of the PSI option resulted in a one letter grade average improvement of student performance, it did not increase satisfaction with the course. A consistent flaw revealed by students was an unrealized expectation that the contents of the course would be vividly and dynamically demonstrable. The actions of drug agents are frequently not clearly demonstrable and according to students were rarely clearly portrayed and were highly boring.

Attempts were made over a two year period to address the problem by introducing film and graphic material and the inclusion of the PSI option. In this study two sections of the course were taught using traditional lecture and seminar methods. Two sections offered a PSI format with module quizzes presented as computer text via a VAX computer system. Two other sections used the PSI format with student quizzes presented via Telidon using highly graphic and colourful material. All students wrote a common examination prepared and graded independently of the course instructor. They also completed a questionnaire which surveyed study habits and attitudes (Herrmann, 1983).

Herrmann (1984) found that the students in the PSI plus Telidon sections reported a significantly greater satisfaction with the course than those in either the lecture/seminar or PSI plus VAX sections. Table 3 presents model responses obtained from at least 66 percent of the students.

The student expectations for grade performance were achieved on the final examination results. Section average for the lecture/seminar mode was 66.3% while in the PSI plus Computer Text (VAX) and PSI plus Telidon the average was 74.2% and 75.1% respectively.

While both PSI treatments yielded enhanced academic performance as measured by the common final examination students in the PSI with Telidon sections reported greater satisfaction with the course than students in either the lecture/seminar or PSI plus computer text sections. Herrmann also found less study time and greater satisfaction by students using Telidon than by other PSI students. In examining student responses between the two groups using computer displayed test items, it was found that Telidon presented questions were perceived as "fair" while the same questions asked in computer test on a regular CRT were seen as "difficult". In addition the same feedback given via Telidon was viewed as being "more helpful" than that given via the monochrome CRT.

A third survey was conducted among Orégon State University students at the completion of the first test module in the Fall Semester, 1984. Similar methods of designing and delivering the visual test items were employed as in the courses reported thus far. Table 4 presents the interaction of students to this use of Telidon enhanced instruction. Students were asked to compare this system with the traditional testing system. Among the responses three patterns emerged, four favourable, three critical and and those offering suggestions for improvement. Favorable comments were "encouraging to use, less work", "OK for self-testing", "OK but I'm not familiar with reading from a screen", "OK, but distracting when you choose a wrong answer", "definite improvement". Among the critical reactions were "imperisonal", "limited range of responses", "prefer traditional, no allowance for ambiguity", "problem in getting the exact wording", "too inflexible with spelling", "puts more pressure on individual with errors in key punch not noticed right away".

The most frequent comment for improvement was the request by nearly half of the respondents for the correct answer to be displayed. While this raises the question of the instructional intent it does provide some indication of student unease with an automated system. Attempts were made in the design of some modules in other courses to relieve this tension by giving a second try on multiple choice or short answer items.

Amtec Leadership Award

The premier award given by AMTEC is the Leadership Award, a handsome engraved gold medallion. There may be no more than two recipients in any one year, and it is given in recognition of outstanding service in the field of educational media. Following are the general criteria for the award:

1. The nominee must have been active in the educational media field for 10 years or more.
2. The nominee may have been active in other local, regional, national, or international level.
3. The award may be presented to one who is active, retired or deceased.
4. Nominations may be made by any member of AMTEC.
5. The nomination must include a brief biographical sketch of the nominee as well as any other information which will be useful in the selection of however many nominees than the award allows. This should include the educational background and the reasons why the nominator feels the award should be made.

Presentation of the award(s) will be made at the AMTEC Annual Conferences Awards Function. This will be part of the annual conference in Calgary in June 1985.

Nominations should be submitted to the Awards Chairman as soon as possible. Address all nominations to:

David MacDougall
Director of AV and TV Services
Sheridan College of AA & T
1430 Tralgar Rd.
Oakville, Ontario L6H 1L1
III. Discussion and Implications

While the two uses of the Telidon system reported here (agricultural extension and college 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 company to provide high-quality, low-cost services. The University was able to get up to speed in a very short period of time without the capital and operating expense associated with a major database system design and networking. The system operator gained access to a region otherwise difficult to serve. The project demonstrated the feasibility of design of action task software not then in use by the company. Ongoing work at the University is directed at systems which may make it possible, subject to agreement on specific applications, to use 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 for 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 other than educational applications, which bears out its initial promise. The potential for Telidon is not limited to the specific on campus applications reported in this study. Further, while there were technical reliability problems, they are of a sufficiently short duration or of limited frequency as not to man the general acceptability. Telidon's requirement for a minimum of motion access to extension and distance education resources.

The Telidon system, however, were identified in the agricultural field trial which the need for less time existed in the manipulation. The first is the entry cost of the terminal. A Telidon dedicated terminal with microcomputer and necessary software costs in the vicinity of $4,000 and is a single purpose device. An IBM PC type microcomputer with the necessary software, colour board and module for display, and output rather than teacher input. Most current microcomputers are interfaced to information input, i.e. the more senses you use the more you can share. Knowledge of what is expected, student practice and awareness of achievement through feedback on performance seems to the author to be the most fruitful areas for improving student learning. The Keller PSI approach (Collaborative Learning) has emphasized learning, especially in post secondary and distance education, has demonstrated that such improvement is achievable. These methods, however, point to the need for some tailed graphic and textual information usage as well as student feedback and the effectiveness and much of its educational power. It is in this era where the administrative and system operator need to clarify Telidon and where its initial success occurred.

Conclusion

The potential for Telidon in distance education lies more in the quality of the interaction and the cost-effectiveness of the system. It has always been the case that educational media but the novelty of the technology is its added value to the system (and per minute) and the availability of additional peripheral devices, will lead to the most effective use of the system. Many existing methods of delivery and distance education, however, can be applied to the system with limited modification. It is anticipated that the increased use of Telidon in distance education will be able to deliver content at a fraction of the cost of traditional means.

CALL FOR PROPOSALS

A major Secretary of State funded project is soliciting proposals from individuals interested in the distance learning area. Proposals could be submitted 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 economic implications of distance education. Submissions will cover areas such as distance instruction, distance education, and new communication technologies. Much, although not all, of the work commissioned is expected to be regarded as internal, however, it may be useful to other projects. Small research grants ($500-$1,000) will be available to support the development of proposals. Opportunities will be available for contributors to attend coordination meetings and/or to participate in public demonstrations/exhibitions. Applications for four or five projects will be selected, based on four or five short proposals and/or booklets or a monograph. Selection of contributors will be determined by the committee.

For more information contact: Dr. D. C. Wilson, Coordinator of Distance and Professional Studies, Faculty of Education, University of British Columbia Vancouver, B.C., Canada V6T 1B5

Dr. R. L. Loehrlein, Project Coordinator Department of Communication Simon Fraser University Burnaby, British Columbia V3A 1V9

ICEM CONFERENCE

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tions. Further work will be available for contributors to attend one or both of the full scale conferences in August, 1986 in Vancouver. The project will publish a collection of selected papers and/or a series of working papers on four or five subject areas.

The TV Ontario Academy on Computers in Education - A Canadian distance-learning system: Bits and Bytes [Don Robertson, Toronto]

Distance learning: an educational experiment [Francis Z. Gana, Ministry of Education, Edmonton]

Format: Canada's National audiovisual information system [Donald Ridd, Department of Communications, Ottawa]

Television and distance education [W. Terry Kerr, Department of Communications, Ottawa]

Tefidon: its use in Distance Education [Dr. D. C. Wilson, Faculty of Education, University of British Columbia, Vancouver, B.C., Canada]

Applications by AMTEC members attending the 1984 ICEM conference were president Bill Hanock, just past-president Bill Barry, and Jack Ed Crisp. President Bill addressed the session on the morning of the second day of the conference, bringing greetings on behalf of altICEM and describing its function to the interested delegates.

The chairman of the ICEM 1984 Conference was Hans Knot of Alberta Education. There will be a look at 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 many years. Sometimes a name is needed for a name of Council for International Educa-