

Project Report: Telematics

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In a well-known essay, Robert Louis Stevenson wrote, "To journey is better than to arrive, and the true success is to labour." If Stevenson was correct, then I put it to you that TVOntario's Telidon project team has already been an outstanding success!

As I look back on the more than two years of activity associated with the Telidon and Education project administered by TVOntario, it seems to me that the distinguishing characteristic of that activity is its frontiersmanship. Like people on a new physical frontier, the project team has sought to make its way using implements not yet fully refined, not yet up to the challenge of performing all the educational tasks that we felt impelled to undertake. It would be somewhat comical to draw a close analogy between the microprocessing apparatus of Telidon and the axes, plows, and hand-saws of the early settlers, but the point should be made that the first page-creation terminals loaned to us by the Department of Communications were a far cry from the Norpak IPS II's with graphics tablets that we now employ. The first decoders posed performance problems that the latest generation of terminals have addressed. The communications hardware and software made linkage between the host computer and the various terminals both inefficient and cumbersome. Systems crashed; work was delayed; tempers were frayed.

Systems Improved

These days, refinements to the technology are still going on, and will doubtless continue on for some time to come, but one is aware that more and more people, especially in the education sector, are talking confidently of Telidon systems that will far exceed the limitations of the pioneering stage. They speak of user terminals that are microcomputers with added Telidon capability, that display Telidon graphics in color, receive Telidon pages via modem linked to the telephone system or by broadcast carriage, or that generate Telidon pages and deposit them in the host computer. They speak of host computers that do far more than respond to requests to ship out pages stored in the data base under a number; that process data supplied from the user terminal; perform calculations; generate random numbers; switch requests to other computers for processing; and accept and store courseware originating at a user terminal fitted with keyboard and capable of carrying on an

alphanumeric dialogue with the data base.

Much of this is already here. All of it soon will be. TVOntario hopes to progress with the technology and explore its potential in the field of education. Meanwhile, however, we have proceeded on the assumption that our ability to understand the new medium and its applicability to a variety of educational environments is best approached by direct involvement with the generation of technology currently available. And like some of the ancient Greek philosophers, we have tried to push the basic concepts as far as they will go.

Capabilities

The current situation features efficient generation and display of graphics on a 535-line television screen. Such graphics are not infinitely detailed, but offer enough resolution and variety to support many requirements for illustration and explanation in an educational context.

Similarly, the prevalent form of data base organization of Telidon pages in a tree structure presents certain limitations, but it was apparent from the start of our explorations that it offered more opportunities for computer-assisted learning than is summed up in its ability to supply indexed information upon request from the user terminal. In particular, it offers the user a set of branching pathways. These pathways can of course be employed by the data base designers to offer the user menus that branch to sub-menus and to the information thus indexed. But they can also be employed to offer the user opportunities to weigh options, make choices, and encounter consequences in the form of responses that reinforce or modify the user's knowledge. In short, a form of computer-assisted-learning is possible, even without the use of a full alpha-numeric keyboard and of higher-language programming in the data base.

I am not making a pitch for numbered keypads and information retrieval in preference to keyboards and more complex information processing. Rather, I am drawing attention to some of the opportunities presented by the simpler system. Having in mind the prospect that the videotex terminals that will find their way into people's homes may employ the simpler technology, it is important that the potential of this technology for education be explored.

Courseware

All of the "courseware" developed by TVOntario thus far is based upon keypad access of numbered data bases. We have begun to explore other options, especially NATAL, and we are working with some schools that wish to use keyboard-equipped Telidon terminals capable of accessing NATAL data bases. Most participants in our field trial, however, are using the simpler technology.

One advantage in this for the people creating data base materials is that it is not necessary to learn an authoring language. The branching pathways that the user is to follow can be planned on paper, and the sequence entered on the IPS terminal, which can be mastered in a very short time. The principal impediment thus far has not been the level of difficulty associated with creating and recording the pages, but rather the accessibility of the IPS terminals. When more and cheaper terminals become available, that problem should disappear.

In TVOntario's field trial, we have proceeded on the assumption that the simplicity of the page creation process makes it possible for users of the data base materials to be the producers of these materials. Schools and colleges are assumed to want to test materials that have been designed specifically to meet their own curriculum objectives. They create the materials; they use them; they evaluate them. TVOntario participates in the process of creating data base materials in much the same way, having its own courseware objectives, designing and inputting its content, and evaluating the result. In proceeding in this way, we expect to clarify and to lay a foundation for our future role as a designer and distributor of Telidon courseware.

Future Plans

We operate in the field of educational communications, under a mandate to make available educational opportunities to the people of Ontario in whatever part of the province they may reside, and under whatever roof — the school, the home, the plant. Our principal arm has been the TVO network, and our principal service has been educational television. We are therefore particularly interested in exploring broadcast

Telidon for its capability of extending the scope of educational opportunities using the existing broadcast facility and its extensions via satellite.

If we are to make considered decisions about the utility of broadcast Telidon, we must learn all that we can about the system. We are therefore studying, and in some degree contributing to, the evolution of the technology itself — its present performance levels with respect to reliability of transmission and ease of levels with respect to reliability of transmission and ease of access by the user to data base content.

Because Telidon can be "piggy-backed" on a television signal, not only can the carriage of Telidon pages be provided free, but a number of other possibilities emerge. We are interested, for example, in exploring the relationship of the Telidon cycle of pages to the television programs that are being transmitted at the same time. Captioning is one possibility, but equally interesting to an educational agency is the prospect of programming the Telidon cycle so that at least some of the content relates to the TV program that is being transmitted or that has just been viewed. Theoretically, the option could be provided for the user to switch from television to Telidon at the time of the broadcast, or alternately, to capture the related Telidon cycle in local memory for follow-up later on. Again in theory, there is no reason why such material could not be received and/or retained in a million homes all at the same time, something that would present important traffic problems on a wired distribution system.

It is possible to argue persuasively that the distribution system of the future will be a mix of broadcast and wired networks. One interesting prospect is the ability to use wired connection to a host computer in order to place requests for information to be transmitted by broadcast. The request would occupy the long-distance line for only a few seconds, but it could release for short term broadcast an entire set of pages that the user may wish to capture in memory and review at leisure.

Content

Whatever the degree of sophistication achieved by the delivery systems of tomorrow, the central question of what content is carried on the system will remain. As modem connection makes possible intercommunication between microcomputers, it is conceivable that the principal content carried on the telephone system will be messages generated for the occasion, whether electronic mail or learning exchanges between individuals, including the professional teacher and the enrolled student.

Even assuming that to be the case, there will still be the requirement for quality data bases that have been developed to serve the educational purposes of the community. Who is to create those data bases is one of the central issues, as is the question of how production is to be funded.

The field trial TVOntario has been conducting has provided one model of a collaborative approach to creating data bases. Schools, colleges, and universities have been invited to participate in an exploration of educational applications of Telidon on a barter basis. TVO provides expertise and facilities such as page-creation and user terminals, and the participant creates a data base sequence and tests it in the field. All of this — training, production, evaluation — takes time. And time is money. Within the time-frame of the field trial, the necessary resources spring from the needs of all parties — the Department of Communications, TVOntario and the participating educational institutions — for reliable information that will help shape development. The immediate return on expenditure is the laying of a foundation on which to build. From the user standpoint, part of that foundation is an educational data base that is emerging from the flowing together of the separate efforts of the participants in the field trial.

I put it to you that in the time-frame that stretches beyond the field trial to the day when educational Telidon services are in place, there is something to be said for a similarly collaborative approach to data base development. I have no recipe for how that might be worked out on a grand scale. But I perceive that there is a need for quality materials that closely reflect the curriculum objectives of Canadian communities — lots of materials, and soon.

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