

Education versus Technology: The Evolution of the Blacksburg Electronic Village

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The Blacksburg Electronic Village is an ambitious effort to link an entire town in Southwestern Virginia with a 21st century telecommunications infrastructure. This infrastructure has brought a useful set of information services and interactive communications facilities into the daily activities of citizens and businesses. In the first eighteen months of operation, the availability of inexpensive access to the Internet and associated services has encouraged and nurtured the development of applications and of delivery mechanisms for services designed for everyday life.

The goal of the project is to enhance the quality of people's lives by electronically linking the residents of the community to each other, to worldwide networks, and to information resources in new and creative ways. The entire community of Blacksburg is being used as a real-life laboratory to develop a prototype residential street plan for the countryside data superhighway being discussed as a high priority on the national agenda. The project is being conducted so that its most successful aspects can rapidly be replicated in future electronic villages in Virginia and elsewhere in the United States.

There are two capabilities that distinguish the Blacksburg Electronic Village from other community network projects:

1. BEV users can interconnect and interoperate directly with any other computer or service on the Internet, worldwide. The software that the BEV provides makes each user's computer part of the Internet. No intermediary computers are used, as in freenets, BBSes, and commercial on-line services.
2. The BEV is committed to community-wide, ubiquitous, and inexpensive access for all members of the community. Through strong cooperative efforts with the public schools and the public library, all school children and citizens who desire it have free, direct access to the Internet, including private electronic mail accounts.

The BEV demonstrates the utility of the information infrastructure by making the network and its services more easily usable and ubiquitously accessible. Moreover, the BEV offers everyone in the community a wide variety of local information and services (e.g., local events schedules, bus routes, school information), as well as the standard services of the Internet. This utility adds up to more than connectivity and services; it builds and develops community and

fosters local economic development, while maintaining global access and reach. Through involvement from local community service groups, businesses, schools, the public library, the local government and the general public, BEV enables organizations and community members to increase contact and communication, to share information, and facilitate greater cooperation and the dynamic exchange of ideas, enthusiasm, and support.

As a community network, BEV offers a systemic approach to the everyday routines, work and play of any individual and organization in the town and county. Users access gopher, Usenet, SLIP/terminal servers, Archie, Internet electronic mail, FTP, and World Wide Web for many day-to-day activities. The breadth and variety of local and global services and information available to users provides useful tools for:

- work (remote databases, suppliers, email among co-workers);
- business (on-line inventory, business hours, reaching customers);
- daily chores (shopping, banking, bus schedules/routes, licenses and fees);
- play (hobbies, games, special interest newsgroups, socializing); and
- school activities, including
 - communication among teachers,
 - between teachers and administrators,
 - between school and community members,
 - between teachers and parents, and for
 - collaborative learning among students and community mentors.

The BEV encourages communication beyond traditional boundaries by making network services available through the public school system, local businesses, local government, health care professionals, and the regional public library.

- More than 40% of the town residents have direct Internet access at home or at work.
- More than 62% of the town residents use email to communicate locally and globally.
- Every school in Montgomery County system has at least 14.4 modem access from the school library to the Internet via the BEV, and seven schools have direct T1 access.

The school system is fostering through T1 lines (1.5 Mbps) a pilot virtual school beginning with classes in seven K-12 schools in Blacksburg and rural, Montgomery County. All 19 schools in the system access local and global educational resources and people, via the Internet, as well as the entire set of local community users in Blacksburg (parents, businesses, local government officials, health care providers, university faculty, community organizations, citizens and mentors).

The prototype community of the future in Blacksburg exemplifies four characteristics essential to a successful electronic village:

1. including an entire community to achieve a "critical mass" of users,
2. focusing on interactions between people rather than focusing on particular technologies,
3. providing applications tailored for each type of user, and
4. implementing new services on a timely basis, so that community networking becomes a fundamental consideration in the vision and planning of the nationwide networking infrastructure.

Finally, we have found that the answer to virtually all our problems are related to education issues, not technology issues. Deploying the network is relatively simple compared to the challenges of educating an entire town about what it means to have daily access to this new communications tool that we call the network.

For Blacksburg, the solution has been to educate the population at all levels, from the disadvantaged to the community leadership. We regard community access to the Internet as an education problem, not a technology problem. In Blacksburg, the network and systems are in place for rapid and easy expansion of services. Our experience indicates that the solution to every problem we have encountered thus far is education. Making service available through the public schools and the public library has been a priority for us since the beginning, and will continue to be an important focus long into the future.