

# **Use and Impact of Community Networking in Blacksburg**

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## **I. Goals of the BEV Research**

1. To assess the use of computer networking among a diverse population in Blacksburg, Montgomery County and environs (schools, local government and business, citizens, libraries, and health facilities).
2. To evaluate the impact of computer networking on social relations, community involvement, awareness of local issues, and flow of resources within and across social networks.
3. To support the dissemination and exchange of research among faculty, students, other researchers and the interested public.

The Blacksburg Electronic Village (BEV) is a community network serving Montgomery County, Virginia (population 78,000). Within the county, the Town of Blacksburg, home of Virginia Polytechnic Institute & State University (also known as Virginia Tech or VT), has a population of 36,000. The majority of the town population (about 85%) is affiliated with the university as faculty, staff or student. In a random sample survey within the town of Blacksburg in 1999, 81% of residents reports using the Internet (Kavanaugh 1999). An estimated 20% of Montgomery County residents outside Blacksburg uses the Internet.

The population of Montgomery County outside Blacksburg is generally of less advantaged social, economic and educational backgrounds, with an agricultural economic base and longer terms of residence. Free public Internet access is available through the Montgomery Floyd Regional Library system, serving both Montgomery and Floyd counties.

The term 'BEV usage' refers to Internet usage, and appears in early surveys (1994-95), when Virginia Tech was the only Internet access provider in the region. The 'BEV' provided local access to the Internet, as well as local content, support and training. With the emergence of private Internet Service Providers in 1995, the university was no longer permitted to provide Internet service to non-affiliates of Virginia Tech. At this time, the data collection on subscribers was no longer possible, as subscribers became dispersed across private ISPs as well as the university. In 1997, the BEV Office continued to handle the subscription for ethernet service in various apartment complexes. The data on this technically sophisticated sub-population (typically students in engineering and science fields) is reported below.

A number of quantitative and qualitative techniques have been used to assess the demographics, computer and network literacy, and the use and impact of computer networking in Blacksburg and Montgomery County (and environs). This report

summarizes the findings from only the quantitative studies (primarily, random sample mail and telephone surveys, mail survey of local businesses, online survey of school board mailing list, and surveys of select K-12 educators and students). We also include the evaluation of Internet use in the public library system, prepared by the Montgomery Floyd Regional Library.

## II. Highlights of Early Users

### A. Demographics

The Blacksburg Electronic Village (BEV) research staff distributed a survey questionnaire to each person who registered for Internet services through the BEV Office between 1993 and 1996. The summary below highlights findings from an analysis of nearly 1,000 questionnaires, completed between November 1993 and August 1996.

The majority (89%) of Internet users in Blacksburg and Montgomery County are affiliated with Virginia Tech. However, the proportion of users registering for service through the BEV Office who are affiliated with Tech was small. The University introduced in Fall 1995 a registration service on campus for faculty, staff and students. As a result, the BEV Office provided sign-up service primarily to the non-university affiliates (the majority of respondents to this survey questionnaire are not affiliated with the university). The results reported in this section of "Early Users" are profiles of users predominantly from the general community.

### B. Early Users' Expectations and Use of the Internet

The majority of early users report they expect the Internet to be 'helpful' or 'very helpful' for informal learning (Table 1). All of the purposes for using the Internet shown in Table 1 indicate an increasing percentage of subscribers reporting "helpful" or "very helpful" (the two highest points on a four-point scale). After October 1996, the only users signing up for service through the BEV Office (and therefore completing subscriber questionnaires) were Ethernet users (high-speed access from apartments in town). The majority of Ethernet subscribers at this time were technically savvy VT students, often in technical fields (engineering, architecture) using large data files. As this is a very different demographic group, they are not included here.

Table 1  
Helpfulness of Internet

	1994	1995	1996
Informal learning	91%	89%	94%
Social relations	64	75	78
Local information	63	70	74
Civic affairs	62	66	70
Work/business	65	66	69
Teaching	47	47	59
Consumer affairs	48	50	54
Medical services	26	45	54

Entertainment	42	52	53
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Consistent with national and international surveys, early Internet subscribers (1994-96) report that electronic mail is the most popular service, followed closely by information access applications (e.g., World Wide Web). Electronic mail and information access were the two most popular types of services among early users. Table 2 shows the percentage of users reporting that they are "interested" or "very interested" in specific applications (top two points of a four-point scale).

Table 2  
Interest in Internet Services

	1994	1995	1996
Electronic mail	95%	95%	97%
Accessing info/data	91	93	
World Wide Web	86	91	95
BBS, newsgroups	90	89	86
Access library catalog	83	76	78
Gopher	77	68	57

The applications clearly reflect the purpose of the communication or information access. One on one communication (email) is more popular than group communication (bulletin board service or BBS, newsgroups) among early subscribers. Informal learning and diverse, general information gathering are more popular than specific types of information access (civic affairs, entertainment).

### III. General Population Studies

#### A. Blacksburg Population Surveys

Every year since 1994, we have enclosed a survey in 4,000 town government newsletters (About Town) to randomly selected households within each census block in Blacksburg. Recipients of the newsletter are Blacksburg residents who receive water bills; therefore, the sample under represents apartment dwellers, which are typically university students. Sample sizes and response rates are low, ranging from 202 (5%) to 334 (8%).

Respondents in the 1999 survey are similar in profile to those of the previous years: roughly half of respondents are female (56%); average age is in the mid-40s. About a third (38%) of all respondents have completed graduate school. The majority (65%) is a member of a church or local club, and a patron (66%) of the public library. The average length of residence in Blacksburg is over ten years (12 years).

As Internet access and services diffused throughout the population, and media coverage of the Internet grew, the population's awareness and knowledge of terms and services increased. Table 3 shows the percentage of respondents of early survey rounds (1995-97) who are somewhat or very familiar with various Internet terms. These questions were no longer carried on surveys distributed after 1997.

**Table 3**  
**Familiarity with terms**

	1995	1996	1997
Electronic mail	51%	58%	73%
World Wide Web	25	48	63
Gopher	28	25	26
UseNet Newsgroup	20	20	25
FTP	22	24	28
Telnet	21	24	27
Listserv	18	26	36
MUD/MOO	7	8	7

Measures of home computer ownership, Internet penetration and computer and network literacy have been consistently higher among the Blacksburg population than national averages. Table 4 shows trends between 1995 and 1999 in computer ownership, and use of electronic mail/Internet. Computer and network literacy is shown as a percentage of respondents reporting they are 'somewhat' or 'very experienced,' with these technologies, the two highest points on a four point scale:

**Table 4**  
**Computer Use and Literacy**

	1995	1996	1997	1999
Use a computer at home	75%	79%	81%	81%
Use electronic mail/Internet	62	69	83	87
Experienced w/computers	72	71	80	76
Experienced w/networks	40	51	67	72

Table 5 shows trends among users and non-users in the general population who expect the Internet to be helpful for various purposes:

**Table 5**  
**Purposes for which Internet will be Helpful**

	1995	1996	1997	1999
Commercial services	29%	29%	32%	57%
Local news/information	63	55	61	50
Health/safety info	40	40	40	48
Online games	13	18	15	15

As with national studies, electronic mail is the most popular service among Blacksburg residents. Table 6 shows trends among users and non-users in the general population that expect the Internet to be 'helpful' or 'very helpful' for communication with various members of their social networks.

**Table 6**  
Internet will be helpful for communication with:

	1995	1996	1997	1999
Friends outside area	61%	55%	79%	84%
Close friends	50	49	70	65
Family	49	52	76	66
National groups	49	44	46	54
Co-workers	43	46	61	60
Local interest groups	42	46	41	30
Teachers	37	38	53	46
Classmates	32	34	52	42
Neighbors	30	37	29	24
Support group	25	29	31	31
Church members	21	27	26	26

In a separate telephone survey of a random sample of Blacksburg residents (Kavanaugh 1999), an increasing percent of respondents with children in school reports using the Internet to communicate with their child's teacher (up from 9% in 1996 to 37% in 1999). An increasing percentage is using the Internet to get information more frequently from local schools (those reporting 'frequently' or 'sometimes' -- the top two points on a five point scale -- was up from 14% in 1996 to 26% in 1999).

**Table 7**  
Use Internet to communicate with your child's teacher?

	1996	1999
Yes	9%	37%
No	91	63

**Table 8**  
Use Internet to get information from local schools?

	1996	1999
Frequently	7%	13%
Sometimes	7	13
Occasionally	5	6
Rarely	8	18
Never	74	50

**B. Montgomery County Survey**

The BEV research staff conducted a random sample survey by mail of 3,000 non-Blacksburg residents of Montgomery County in November 1998. The response rate is low (10%), with the majority (62%) of respondents reporting they use the Internet. From

several earlier, more representative surveys (Patterson and Kavanaugh 1999) we estimate that 30-40% of the County population (excluding Blacksburg) uses the Internet. The results of our 1998 survey are clearly skewed towards respondents using the Internet. With these caveats, however, the results show some interesting trends among Internet users.

The economic base of Montgomery County outside Blacksburg is predominantly agricultural. Among the survey respondents, the average length of residence is 24 years; average educational attainment is some college or a community college degree. The majority (71%) is a member of a church or local club; about a third (32%) have a child in school. Sixty-five percent (65%) of respondents uses a computer at home; 62% uses a computer outside the home. Sixty-one percent (61%) reports being 'somewhat experienced' or 'very experienced' with computers; 46% reports being 'somewhat experienced' or 'very experienced' with computer networks.

In general, it appears that county residents seek to overcome some of the isolation of their rural environment, with a higher percentage than Blacksburg residents expecting the Internet to be somewhat helpful or very helpful with health care information. Findings for county residents are consistent with national studies of later Internet adopters who are more interested in entertainment and commercial services than in civic affairs. Nonetheless, the lack of local information available online for county residents may be a factor in their lower expectation of the Internet for this purpose. Table 7 compares the percentage of Blacksburg and non-Blacksburg (County) respondents reporting that they expect the Internet to be 'somewhat helpful' or 'very helpful' (top two points on a four point scale) for the following purposes:

**Table 9**  
**Helpfulness of Internet for Different Purposes:**  
**Blacksburg vs. the County 1998-99**

	BLACKSBURG	COUNTY RESIDENTS
Civic affairs	46%	33%
Local news/info	56	47
Health/safety info	55	66
Commercial services	65	38
Online games	18	46

As with national studies, the majority of respondents in Blacksburg and Montgomery County expect the Internet (electronic mail) to be most helpful for communication with friends and family. Table 10 compares expectations of Blacksburg and non-Blacksburg residents of Montgomery County regarding the helpfulness of the Internet for communication purposes with different members of their social networks. It shows the percentage of respondents reporting the Net to be 'helpful' or 'very helpful' (the top two points on a five point scale).

**Table 10**  
**Helpfulness of Internet for communication with whom?**  
**1998-99**

	BLACKSBURG	COUNTY RESIDENTS
Friends outside area	94%	71%
Family	74	65
Friends nearby	73	49
Co-workers	70	52
National interest groups	63	55
Local interest groups	48	29
Teachers	60	40
Classmates	56	39
Neighbors	29	21
Support group	35	34
Club or church	39	36

#### **IV. The Impact of Networking on Community**

Computer networks, such as the Internet, allow interaction among groups of people. As such, they have the potential in geographic communities of restoring "a political dynamic of an earlier time" (Ithiel de Sola Pool 1983), and supporting and extending social relationships and networks. The quality of life in a community with dense social networks, high levels of trust, and norms of mutual reciprocity, what Putnam (1996) and others refer to as "social capital," is higher than the quality of life in communities with low social capital.

The concentration of local information and services, local newsgroups, and other locally focused material on the BEV web pages provide the environment in which social networks, social trust, and norms of mutual reciprocity can be supported, possibly even enhanced. From the outset of the project, users expressed their interest and satisfaction in being able to be more connected to their community. As noted above, 72% of BEV users report they expect the Internet to be somewhat or very helpful with civic affairs; 86% indicate they are somewhat or very interested in bulletin boards and newsgroups; 79% report they expect BEV to be somewhat or very helpful in social relations. In the 1997 round of the About Town Newsletter survey of the general population of Blacksburg residents, 28% report being more involved in the local community since getting on the Internet.

In a random sample telephone survey conducted in November 1996 of the local calling area (Blacksburg, Montgomery County and environs), Kavanaugh and Patterson (1998) find a positive correlation between Internet use and community involvement. Internet users outside Blacksburg score significantly higher on three out of four measures of community involvement than non-Internet users. In Blacksburg, (non-student) Internet users score significantly higher than non-Internet users on measures of community

involvement. Thus, use of the Internet is associated with increases in community involvement in Blacksburg and environs.

Increased community involvement since getting on the Internet is reported among about a fifth (22%) of the sample population (N=558). That is, 22% of respondents who use the Internet, report that they are 'more involved in their local community since getting on the Internet.' These respondents also score significantly higher on independent measures of community involvement than respondents reporting they are "equally involved" or "less involved" in the local community since getting on the Internet. Thus, the respondents reporting they are more involved in the local community since getting on the Internet appear to be 'predisposed to be involved' in the local community.

The BEV research staff conducted a second round of the same "community involvement survey" in September 1999. The results show a clear trend among Blacksburg respondents of increasing usage of the Internet services (most notably, the Web, group discussion and email) with local organizational affiliations (soccer club, church, Boy Scout Troop, High School Band, PTA) and with members of their social networks.

**Table 11**  
Use Internet to Communicate with Local Club or Church

	1996	1999
Frequently	2%	8%
Sometimes	4	9
Occasionally	3	4
Rarely	8	13
Never	83	66

**Table 12**  
Use Internet to Communicate with Local Organizations

	1996	1999
Frequently	5%	11%
Sometimes	7	9
Occasionally	5	5
Rarely	11	17
Never	73	57

## V. Local Government

### Users' Perspective on School Board Mailing List: Uses and Gratifications

James Klagge was elected to the Montgomery County School Board from District F in Blacksburg in 1996. To better reach his constituents, he established an electronic mailing list following his election. In November 1996, the first author in collaboration with Mr. Klagge, designed and distributed a questionnaire to the 369 members of the electronic mailing list. The survey was conducted in order to understand the needs and interests of

users and to better understand the uses and gratifications obtained from networked communication. The first author and Mr. Klagge distributed a second round of the same survey to the mailing list in November 1999. By this time there were over 800 recipients of the electronic newsletter. Trends in the uses and gratifications obtained between 1996 and 1999 follow.

In 1996, seventy-six members of the mailing list responded. A large majority (78.9%) of respondents rated the mailing list helpful or very helpful in clarifying education issues (the top two points on a five point scale). A large majority (87.3%) also rated the list helpful or very helpful in keeping up to date with school issues. Most respondents (82%) reported that having school issues communicated via the list has made them feel more involved in school issues.

**1. How long have you been on the School Board mailing list?**

	1996	1999
1 to 6 months	23%	7%
7 to 12 months	70	22
More than 12 months	7	71 (23% for 2 years; 40% for 3 years)

**2. On a scale of 1-5, how would you rate the helpfulness of the communication via this list in clarifying issues?**

	1996	1999
Not at all helpful	4%	2%
A little helpful	2	0
Helpful	11	10
Quite helpful	31	26
Extremely helpful	48	62
No answer	4	0

**3. On a scale of 1-5, how would you rate the helpfulness of the communication via this list in keeping you up to date with school issues?**

	1996	1999
Not at all helpful	4%	1%
A little helpful	4	2
Helpful	2	4
Quite helpful	24	22
Extremely helpful	63	71
No answer	3	0

4. Would you say that having school issues communicated to you via this list has made you feel more involved in these issues than you felt prior to subscribing to this list?

	1996	1999
Yes	82%	91%
No	13	7
No answer	4	2

5. On a scale of 1-5, how do you rate the reply function of this list?

	1996	1999
Not at all important	3%	7%
A little important	3	7
Important	11	15
Quite important	20	25
Extremely important	56	40
No answer	7	6

6. Would you say that your participation in public meetings regarding school issues has increased, decreased or stayed the same since you became a member of this mailing list?

	1996	1999
Increased	13%	21%
Decreased	3	6
Stayed the same	79	66
No answer	6	7

7a. If you answered "increased" to Question 6, would you attribute an increase in your attendance at public meetings on school issues to the communication from this list?

	1996	1999
Yes	13%	25%
No	38	2
No answer	49	73

7b. If you answered "decreased" to Question 6, would you say that replying to Jim Klagge's email is substituting for face-to-face participation [1999 only]?

Yes	12%
No	18
No answer	70

8. How many times have you called a public official or school administrator as a result of communication exchanged via this list?

	1996	1999
None	59%	54%
1 to 5 times	31	34 (25% called one or two times)
6 to 10 times	3	7
More than 10	5	0
No answer	7	0

9. How many times have you written a letter to an elected official or school administrator as a result of communication exchanged via this list?

	1996	1999
None	42%	46%
1 to 5 times	1	46
6 to 10 times	3	5
More than 10	0	5
No answer	4	0

10. How many times have you spoken at a public meeting as a result of a communication exchanged via this list?

	1996	1999
None	86%	72%
1 to 5 times	4	24 (13.2% have spoken once)
6 to 10 times	0	4
No answer	10	0

11. Have you told other people whom you thought might be interested about this list?

	1996	1999
Yes	53%	79%
No	37	18
No answer	10	3

## VI. Local Business Trends 1995-99

In order to assess trends in the local business community with regard to the Internet, the Blacksburg Electronic Village (BEV) Research Director designed and implemented three

rounds of a local business. The first round was in summer 1995, the second in summer 1997, and the third in fall 1999. There are two different versions of the survey: one for businesses that are using the Internet, the other for businesses NOT using the Internet. Each year all the questions of the previous round were asked again, and a couple of questions were added.

In all three rounds, the BEV research staff sent a survey to every viable private company listed on the BEV web page, called the 'Village Mall,' (100 businesses in 1995; 217 businesses in 1997; and 397 businesses in 1999). Among businesses using the Internet, the response rate ranges from 37% (N=37) in 1995 to 17% (N=100) in 1999. BEV sent a survey to the businesses that were members with the local Chamber of Commerce, but were not listed on the 'Village Mall' web site (338 in 1995; 340 in 1997; 327 in 1999). These were assumed to be businesses NOT using the Internet, although some did write to request the Internet user survey. The response rate among businesses NOT using the Internet range from 17% (N=) in 1999 to 24% (N=72) in 1997 and 29% (94 responses) in 1995.

The surveys, together with other feedback from the business community, have helped BEV project designers make adjustments or interventions that are intended to assist businesses in using online resources. For example, in 1996, the Town of Blacksburg contributed roughly \$10,000 in mini-grants (of about \$350 each) to businesses interested in publishing their information online. Moreover, business findings considered together with local consumer feedback, portray an evolving picture of trends and other changes in the relationship and interaction between consumers and producers carried out over a computer network rather than face-to-face or by telephone.

#### A. Businesses Using the Internet

Among businesses using the Internet, the majority in all three rounds is made up of small businesses with fewer than ten employees (65% in 1995 and 1997, 58% in 1999). There is diversity in the type of business, although most are in the services sector offering retail, consulting, computer, professional or non-profit services. Most have five or more years of experience with computing (61% in 1995 and 1997; 62% in 1999). An increasing percentage of businesses has more than five computers (30% in 1995, 39% in 1997, 40% in 1999) with the majority using the Windows operating system (86% in 1995, 84% in 1997, 85% in 1999).

Most businesses report having one or two computers connected to the Internet (80% in 1995, 70% in 1997 and 52% in 1999). They use the networked computers up to 20 hours a week (90% in '95, 81% in '97 and 66% in 1999). An increasing percentage of businesses report using networked computers between 21 to 100 hours per week (10% in 1995, 19% in 1997, and 29% in 1999). The majority has dial-up access to the Internet (75% in '95, 67% in '97 and 68% in 1999). The drop in dial-up access is due to businesses shifting to direct connections via Ethernet at such high speeds as 10 Megabits per second or T-1 lines at 1.45 Megabits per second.

As with most businesses in Blacksburg and environs, most respondents using the Internet are small with fewer than ten employees (65% in 1995 and 1997; 58% in 1999). There is diversity in the types of business, although most are in the services sector offering retail, consulting or professional services. Almost two-thirds of respondents have five or more years of experience with computing (61% in both 1995 and 1997; 62% in 1999); a growing

proportion have more than five computers in their organization (30% in 1995, 39% in 1997, 40% in 1999).

**Table 13**  
**Reasons for Listing Online**

	1995	1997	1999
It is free	65%	63%	81%
Interest in technology	70	52	30
To increase contacts:			
with clients	84	78	71
with suppliers	8	13	11

In the first (1995) survey round, only 14% of respondents reported an increase (up to 10%) in contacts (per month) with suppliers and clients, and only 4% reported increases between 11-20%, resulting from the Internet. By 1997, 27% of respondents noted up to 10% increases in contacts per month, and one company, a web distributor of books, noted increases between 41 and 50% in contacts with clients and suppliers. In the 1999 round, table 14 shows increasing percentages of businesses reporting greater contacts per month. The businesses reporting the highest percent increases (41-50%) in 1999 are also web companies.

**Table 14**  
**Percent of Businesses reporting Increases in Contacts (per month)**

	1995	1997	1999
No increase	82%	70%	25%
1-10% increase	14	27	47
11-20% increase	4	0	9
31-40% increase	0	0	6
41-50%	0	3	13

A similar pattern appears on the revenue side. In 1995, only 5% of respondents reports an increase of up to 10%. By 1997, this had risen to 17%, and by 1999, 37% of respondents notes up to 10% increases in revenue generation per month resulting from their Internet use or presence. The businesses reporting revenue increases between 41 and 50% and 50 - 100% are web-based businesses (e.g., web publisher or distributor).

**Table 15**  
**Percent of Businesses reporting Increases in Revenues (per month)**

	1995	1997	1999
No increase	95%	80%	43%
1-10% increase	5	17	37
11-20% increase	0	1	7
21-30% increase	0	0	0

31-40% increase	0	0	0
41-50% increase	0	2	3
50-100% increase	0	0	3

While online commercial transactions are not offered as a service to local businesses, the BEV is interested in working with local banks to make such transactions possible in the future. There is evidence of declining interest in online commercial transactions, dropping steadily from 60% in 1995 to 48% in 1999. Among those reporting they were not interested in commercial exchange online, a third of respondents in both early rounds (32% in '95, 31% in '97, 31% in '99) noted that online commercial transactions were not applicable to their business. Only a few companies reported concern about data security (8% in 1995, 11% in 1997, 6% in 1999).

Table 16  
Why not interested in Commercial Transactions Online?

	1995	1997	1999
Not applicable to my business	32%	31%	82%
Not big enough market	0	3	6
Security concerns	8	11	6
Other	0	3	6

### B. Businesses NOT using the Internet

Among the 92 respondents NOT using the Internet that were surveyed in the first round, most (72%) indicate that they do not list information about their business (on the BEV Village Mall web site) because they do not use computers in their business. The remaining 28% report they do use computers, but they do not have a network connection. Other reasons (listed below) were not a consideration for these businesses in 1995. By 1997, only 6% of respondents noted that they do not use computers in their business; 22% said they use computers but do not have a network connection. In addition, the following factors are noted as reasons why they do not list their business on the Internet:

Table 17  
Why No Online Listing?

	1995	1997	1999
Don't use computers	72%	6%	5%
No network connection	28	22	14
Cost	0	14	17
No market application	0	28	10
Too busy	0	3	10
Need technical knowledge	0	3	14
Other	0	24	24

In 1995, almost all respondents (94%) note that technical support and training are important motivating factors for using the Internet in the future. Therefore, in the

subsequent 1997 round, we asked businesses if they had trained any of their staff in the previous year. The majority (94%) reported they had sent one to five employees for Internet-related training in the previous year (78% had sent one or two staff, another 16% had sent three to five staff for Internet training). This is comparable to training among businesses reporting they DO use the Internet (95% in 1997 and 88% in 1999 report that 1-5 employees had taken training in the year prior).

In 1997 and 1999, technical support and training were no longer important motivating factors for the majority (less than one third of respondents). The majority of respondents (54%) wanted to see evidence of revenue potential. Other important motivating factors for using the Internet that emerged since 1995 include reduced cost, evidence of a large market base, and lower marketing (advertising) costs (Table 18).

Table 18  
Incentives for Future Use  
1995 1997 1999

	1995	1997	1999
Tech support/Training	94%	29%	30%
Reduced cost	0	22	19
Large market base	0	25	28
Revenue potential	0	51	54
Lower marketing costs	0	22	14
Nothing	6	10	14

A detailed breakdown of the longitudinal business study is available in hard copy, upon request.

## VII. Public Access to the Internet

### A. Montgomery-Floyd Regional Library (MFRL)

Since 1993, the Montgomery-Floyd Regional Library (MFRL) has promoted an ongoing program to provide universal information access for the residents of the diverse communities of the New River Valley. With support from the U.S. Commerce Department TIIAP Program, MFRL along with its partners the BEV and Montgomery County Schools, has proactively addressed the issue of disparity in information access. MFRL has provided not only easy access to information resources on the Internet, but also the training of staff and patrons required to make effective use of these resources.

MFRL began its first program of Internet training for staff in October 1993 at the Blacksburg Area Branch (BAB). Public Internet access officially opened in January 1994 with public training beginning shortly thereafter at the BAB. The MFRL Computer Specialist and the Electronic Reference Librarian conducted these classes and demonstrations.

Initially, a single T-1 data line fed seven computers at the BAB. MFRL expanded this public Internet access to include the other two MFRL libraries via a frame relay WAN integrated with SIRSI, the MFRL automation system. T-1 lines were installed between

Blacksburg and Christiansburg, providing a 1.45 Megabits per second data transmission and adequate bandwidth to facilitate use of advanced applications. The Floyd library was connected to the WAN via a 56 Kilobits per second data line due to the site's smaller size, fewer computers and limited budget.

Providing Internet access at all three branches of the MFRL necessitated providing additional training to both staff and to the public. Previous MFRL studies conducted under Library Services and Construction Act (LSCA) grants revealed that familiarizing existing staff with Internet navigation protocols required an initial training session, plus three follow-up sessions. Even after these training sessions, some staff did not feel comfortable with answering patron questions about the Internet or its usage. The Library felt it was necessary to hire personnel specific to the duties of public Internet training. The goal was to help the public achieve an appreciable level of network literacy, to help eliminate the fragmentation of local communities into segments of information "haves" and information "have-nots."

In 1995, MFRL hired a full-time Internet trainer with support from the US Department of Commerce TIIAP grant. For eighteen months, the Internet trainer maintained a schedule that rotated between the regional library branches. This training program covered demand for both public and staff training, in three communities of widely varied composition and culture. The Internet applications taught by the grant-funded Internet Trainer were Netscape Navigator, Eudora Lite, a variety of HTML editors and WSFTP. As part of the grant, MFRL conducted an evaluation of the basic demographics of trainees in comparison with those from previous surveys conducted at the Blacksburg Branch of the Montgomery-Floyd Regional Library. Another focus was to use the survey responses to help evaluate the scope and effectiveness of the MFRL training in 1996 and 1997.

## B. Library Patron Evaluation

The vast majority of trainees falls into the age category of "adult". The average age of participants system-wide for the first 227 surveys is 47, compared with 38 and 37, as calculated from RSS I (1993) and RSS II (1995), respectively. So, the addition of the demographics of the Town of Christiansburg and Floyd County skews the results toward higher age brackets. Almost a fifth (19%) of the trainees are in the 65-years-plus bracket, showing a real demand among senior citizens for training in technology. In fact, the Internet Trainer specifically notes the enthusiasm and commitment of the seniors who attended her classes.

As in the earlier surveys (RSS I and RSS II), gender distribution of recent trainees strongly favors "female." This tends to indicate that the women of the area have as much interest in the Internet as men, and will use it if the facilities are available.

Eighteen percent (18%) of respondents in 1997 reports a high school degree or less of formal education, compared with 12% and 10% in the Blacksburg-based surveys (RSSI and RSSII). Thus, 81% of 1997 respondents reports at least some college schooling. Therefore, in spite of the rural atmosphere of the area, the overall level of education is reasonably high.

Regarding the scope and effectiveness of the MFRL public Internet training for the period of May 1996 through May 1997, 1002 people were trained during this time period. Immediately following the beginning of WWW Basics classes, popularity of the Internet access terminals at the MFRL branches jumped tremendously. Suddenly, the library didn't have enough terminals to meet demand. It was not uncommon for patrons to encounter a wait time of 15 to 60 minutes for a chance use the Internet. MFRL responded to this situation by adding more workstations, and as the training proceeded over the course of the year, demand continued to increase. Librarians noticed many patrons returning for regular Internet sessions. The result at the Christiansburg Branch was that two workstations were designated for SIRSI online catalog access only, while all seven additional workstations provided Internet access.

In terms of increasing public awareness of the Internet and popularity of its use in all three MFRL branches, the training program was a success. The Internet Trainer reported that "We reached many people who would otherwise never have had exposure to either the Internet or computers in general, in a systematic way which increased their skills and awareness."

The Internet Trainer related other stories of success, including experience of several first-year French students at Floyd High School. After taking the WWW Basics class, they were able to contact students in France and become virtual pen pals. The Trainer also related that "[A y]oung couple attended several of my classes including HTML Basics. They had recently had their first child." They went on to create a web page with shots of their baby's pictures to keep their family ... up to date with the baby development." Another observation relevant to the success of the project: "An unemployed mother without computer skills attended all 4 of my courses and through the monster board web site found a job paying quite well enabling her to work at home and continue to care for her young children."

Although the intensive training programs ended in 1997, the library staff has become proficient in Internet use and continues to provide help to individual patrons, as needed.

### **Selected References**

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