

## Rural Learners: Internet Uses Through Broadband Connections

Roger Hiemstra  
 Senior Research Associate, American Distance Education Consortium  
 University of Nebraska

### The Internet's Staggering Growth

The growth in Internet usage during just the past two decades has been phenomenal. Table 1 depicts the rapid increase in growth through 2004.

Table 1. *Growth in Internet Hosts.*

Time Period	Number of Hosts
1960s	Increased from 0-4
1970s	Increased from 5-188
1980s	Increased from 188-250,000
1990s	Increased up to 60 million
December, 2004	Estimated to exceed 286 million

Source: Zakon, 2005

In addition, the World Wide Web has grown from 130 sites in 1993 to nearly 57 million by the end 2004 (Zakon, 2005). The Internet with its access to huge amounts of data is fundamentally changing the way people access, think about, and use information. In the United States these changes are becoming profound: "The Web has become the 'new normal' in the American way of life; those who don't go online constitute an ever-shrinking minority" (Rainie & Horrigan, 2005, p. 59).

The pervasiveness of Internet usage is truly becoming worldwide. With multiple userids becoming the norm, the United States is approaching 1.5 billion Internet addresses used by more than 200 million people; the European Union has more than 215 million users, and China is growing rapidly with more than 87 million (Miniwatts International, 2005). Thomas Friedman in his run away best seller declares that the world is now flat and the power of connecting via the Internet is unstoppable (2005). However, as the well educated, wealthy, and urban population can't work, play, or live without constant involvement with the Net, those in rural and remote areas often face a different situation. Typically they have little or no choice of provider and usually must pay more from their lower incomes for access.

Such limited and expensive access to telecommunications infrastructure therefore becomes a problem for such people. Unless we find ways of addressing this situation, there will continue to be a division of these people who most need educational opportunities from the so called societal "haves." The longer this continues, the more potential that resulting havoc will be raised locally, nationally, and even internationally.

### Background on Internet Uses

In the past few years there have been various studies of how people use the Internet. For example, the Pew Research Center's Internet & American Life Project (2005) is one of two national efforts for studying Internet usage. Project researchers report that online activity has grown consistently since they began their research: "Internet users discover more things to do online as they gain experience and as new applications become available" (Madden & Rainie, 2003, p. 2). This also notes, "[t]his momentum often

fuels increasing reliance on the Internet in everyday life and higher expectations about the way the Internet can be used in matters both mundane and mighty” (p. i).

The USC Center for the Digital Future is another organization researching the Internet (Lebo, 2004). A four-year research baseline in many ways parallels the Pew results. They established behavior and attitudes about the amount of Internet use, who is using it, and types of uses. Their year four report shows that 75% of Americans have access to the Internet; the number of hours online increased to an average of 12.5 hours weekly, up from 6.1 hours in 2000, with e-mail and general browsing the most popular uses.

Unfortunately, these studies verify that rural areas lag behind urban areas:

When the Pew Internet & American Life Project first began surveying the Internet landscape in early 2000, 41% of rural residents were online, while 51% of urban residents and 55% of suburban residents were online. Rural Internet penetration climbed to 52% by the middle of 2003. However, urban and suburban penetration rates have risen as well. Rural Internet penetration has remained roughly 10 percentage points behind the national average in each of the last four years. (Bell, Reddy, & Rainie, 2004, p. 2)

They note, too, that “low-income people in rural areas are less likely to be online than low-income people living in urban or suburban areas” (p. 2). Rural people have “less choice than others about the way they access the Internet” (p. 3). Broadband adoption, although growing, also is less in rural areas.

Broadband access to the Internet actually is growing steadily in the United States, although dial-up connections still predominate. Horrigan (2004), however, found a growing impatience with slower dial-up connection modes overrides a usual steeper price: “relatively novice Internet users are moving from dial-up to broadband more rapidly than before” (p. 1). As might be expected, only 10% of rural users have broadband service at home because of limited infrastructure availability and steep costs, compared to “28% of those living in urban or suburban locations” (p. 7) with home access.

### **The Research Project**

The American Distance Education Consortium’s NSF funded Advanced Internet Satellite Extension Project builds on such information. It focuses on hybrid networks combining Internet2, VSAT technology, and new applications. Tachyon Corporation via satellite transmissions is the ISP (Tachyon, Inc., 2005). The project seeks to understand the impact of broadband connections in rural areas and determine how rural people use the Internet.

As one of several studies, Hiemstra conducted site visits in two Michigan locations and one Idaho location. Personal interviews, qualitative memo development, and participant observations were used in gathering data. A satellite dish installed as a roof mount or on a raised outdoor platform feeds the Internet to computer workstations in community centers. Center employees provide part-time guidance; paid teachers, volunteer teachers, and volunteer computer specialists assist in various ways.

Volunteers were sought with 51 usable interviews obtained in the three sites, including 15 female and 15 male youth (8-18) and 14 female and 7 male adults (19 or older). Information on race and experience level also was obtained.

Qualitative data collection and analysis techniques were used, including a semi-structured interview schedule, probing questions, written notes, and participant observations. QSR International’s NVivo qualitative research software (2002) was used for handling, reducing, rearranging, linking, and displaying data so an evolving understanding of situations, experiences, and observations could be gained.

### Internet Uses

Interviewees were asked to describe the various activities for which they use the Internet. Most people talked quite freely and enthusiastically about their experiences. Various examples, prompts, or probing questions were used to aid more hesitant people.

Rural people, in fact, make wide and varied use of the Internet when there is a broadband connection. Following is a sampling in the interviewees' words.

A 13 year old Hispanic female and experienced user living in Idaho made several uses of the Internet:

*I type in my e-mail and I play NeoPet and I do research. I do the WebQuest things they do here. . . it helps with my typing. I look up things. . . I go to MSN and then I enter search and, say, I go, if I want to look up pets and it gives you a lot of details about pets and all these references that have pets.*

A 14 year old female and experienced Internet user from Michigan put it this way:

*E-mailing, searching, and I use it to take an Internet class. I chat with people from different countries, and I, oh well, I do some stuff for school.*

A 15 year old male and experienced user from Idaho had an interesting use among several others:

*I look up information for reports and stuff or on an art project. . . . I get pictures I can draw . . . Well, I know what I wanted to draw that sometimes we get certain things we have to draw, like shadowing and stuff. Well I go to the Internet and if they already have a Web site I go there to find a picture and print it off. And if they don't I would go to Google and images and find. . . [what] I can use.*

A 29 year old American Indian male and experienced user from Michigan made some eclectic uses of the Internet, even drawing on an interest related to his childhood:

*. . . I collect toys and a lot of Japanese cartoons. I use it for a lot for the animation and surfing the web. My Dad and most of my family served on this base so I am an Air Force brat. So I use it to look up a lot of stuff on military equipment and just to surf.*

A 47 year old female and experienced user from Idaho commented:

*Well, I do more searching things out like, I don't know, health issues, vitamins, and then e-mail. We're in a home school group that you go to a Web site to read an article or something, you know, there's quite a bit of that.*

A 47 year old male and beginning user from Michigan was enthusiastic:

*I've used it for references on different things, for medical problems, and I listen to a lot of country music . . . and talk with other people from around the country on there, too. . . I have used it for to look up, with my diabetes, and since my Dad got cancer they have a, I think it is called cancer.com, where you can speak with other people with cancer.*

These sample quotes reveal how many people intuitively understand that their user-derived needs can be met through the Internet. They are asking interesting questions about life, personal interests, and essential needs. In essence, the Internet becomes a tool for fairly quickly and efficiently meeting such needs.

This study also extracted very specific information on how the Internet is being used. Therefore, to help paint a broader picture, Table 2 compares 37 experienced Internet users (one or more years) with 14 inexperienced (less than one year) users. Qualitative judgements were made on the interview data to

determine those activities with which a subject was involved in a useful, important, or frequent basis. Thus, a figure in a cell indicates the number of people for whom that category represented a significant use. As might be expected, those with experience frequently make more sophisticated uses of the Internet. Thirty youth and 21 adults also were compared. Youth use the Internet to play games more and do homework, for example, and adults do more browsing, look more for news, and pursue hobbies. Generally, no real differences in usage were found according to gender or race.

Table 2. *Use of the Internet by Rural Subjects: Experienced and Inexperienced and Adult and Youth Comparisons*

Type of Activity	Experienced (1 or more Years)	Inexperienced (< than 1 Year)	Adult (18 or more)	Youth (17 or less)
Browsing	32	06	20	18
Playing Games	27	10	08	29
E-mail	20	07	12	15
Help with Schoolwork	18	06	01	23
Entertainment Information	09	06	05	10
Read News	13	00	11	02
Download Music	09	02	02	09
Shopping	10	00	07	03
Help with Hobbies	06	01	07	00
Find Medical Information	06	01	07	00
Chat Rooms	06	01	04	03
Banking	05	00	05	00
Find Travel Information	05	00	05	00

An examination of the broader picture suggests that rural users are involved in a multitude of activities and they show considerable sophistication as they use the Internet to meet personal needs. Their patterns are similar in some ways to those found in previous studies, but different in others. Additional studies with larger samples will shed further light.

Information also was obtained on the types of web sites preferred, search engine preferences, and even how web sites were evaluated. Contact the researcher for more specific information and to obtain more clarity on what the Internet means to these rural people. The real richness in a qualitative study comes through the interviewees' own words, but space requirements limit what can be shown in this report.

### **What Does This All Mean?**

At least in those rural sites visited, the Internet has become an important means for enhancing the lives of many people. Thus, it is anticipated that rural people in the United States will make good use of computers that can access broadband Internet. They will become avid Internet users if opportunities to do so exist. With experience, such use often will become more sophisticated, essential, and conducive to making a real difference in their lives and, subsequently, in their communities.

In many respects, the power of broadband Internet helps rural people think of it as their encyclopedia, World book, and "go to" source of information needed for life. Yes, that includes playing games, e-mailing friends, listening to a song, and booking an airplane ticket for that get away vacation. However, who can say that such snatches at joyful living aren't just as essential as finding help for homework, chatting with someone about your Dad's cancer, or locating the information necessary for submitting a

funding proposal. As a 14 year old female in Michigan said, "Anything that you want is there. The whole world in a computer."

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### Biographical Sketch

**Roger Hiemstra** is Senior Research Associate with the American Distance Education Consortium, NSF Project, University of Nebraska. He is Professor and Chair Emeritus, Adult Education, Syracuse University and Elmira College in New York. During a 40-year career, his scholarship has focused on older adults as learners, self-directed learning, and distance education. He is recipient of the Malcolm Knowles Memorial Self-Directed Learning Award. He was inducted into the International Adult and Continuing Education Hall of Fame in 2000 and currently serves on the organization's Board of Directors. He is co-author of *Toward Ethical Practice*, Krieger Publishing, 2004.

Address: 318 Southfield Dr.

Fayetteville, NY 13066

E-mail: [rogerhiemstra@hotmail.com](mailto:rogerhiemstra@hotmail.com)

URL: [www.distance.syr.edu](http://www.distance.syr.edu)

Phone: 315-637-3527

Fax: 815-333-1360