

# Learning and Broadband Internet Connections for Rural Users

Roger Hiemstra, Senior Research Associate

June, 2004

[Note: This information was prepared as Hiemstra's last consultant's report to The American Distance Education Consortium (ADEC). It was accepted by ADEC and included in the ADEC final report to the NSF financed Advanced Internet Satellite Extension Program.]

## Introduction

The increase in computer technology during the past 40 to 50 years has been nothing short of phenomenal. In 1958 this researcher was working as a computer operator for the Douglas Aircraft Company in California. That year when the company replaced its IBM 701 with the 704, this new mainframe computer was considered by many as the world's first super-computer and the first to use floating-point hardware (Bellis, 2004). Its magnetic core memory was considered so fast and reliable and its ability to interface with card readers, multiple magnetic disk drives, and tape drives so enhanced the computing power that the company added two dozen new Fortran programmers just to keep up with the enlarged capability. However, in most respects that was only the very beginning of computer technology growth and a subsequent impact on society. Today most people who can access even a low end laptop or desktop has many times the capability of the nearly 100 people who ran, supported, or programmed for that IBM 704.

In reality, the growth in computer usage during just the past two decades has been almost mind boggling, especially with the development of the Internet and our abilities to easily link with other computers. Table 1 depicts this growth through 2002 in terms of the rapid increase in Internet hosts, or those nodes, servers, and gateways people use to access or connect to the Internet. The growth has no doubt continued to escalate since then.

Table 1. *Growth in Internet Host.*

Time Period	Number of Hosts
1960s	Went from 0-4
1970s	Went from 5-188
1980s	Went from 18-250,000
1990s	Went up to 60 million
Jan. 2003	Estimated at nearly 172 million

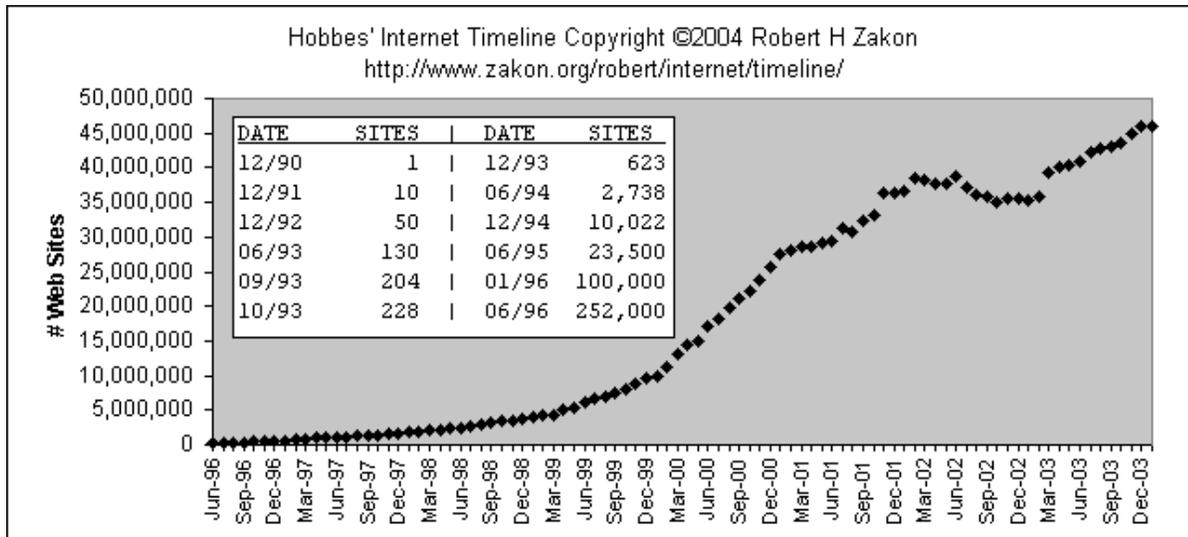
Source: Zakon, 2004.

Perhaps the most important revolution, though, was the development of the World Wide Web. As Figure A depicts, the Web has grown from 130 sites in 1993 to more than 46 million as of January, 2004 (Zakon, 2004). Thus, to say that the Internet and the Web with its access to huge amounts of information have fundamentally changed the way people access, think about, and use information is

almost an understatement. In many respects, we may be only on the cusp of fundamental change throughout the world as we work to understand how the information age is impacting humankind.

This current research project is one effort to increase such understanding by looking at some rural users of the Internet in the United States. The effort is part of educational effectiveness initiatives promoted by ADEC's NSF sponsored Advanced Internet Satellite Extension Project.

Figure A. *Hobbes' Internet Timeline*



Source: Zakon, 2004.

This researcher and several other researchers have been conducting independent but coordinated study efforts in various states. It is anticipated that our combined efforts will shed important light on how rural American youth and adults think about, use, and embrace the Internet when they have broadband access via satellite technology.

### Background On How the Internet Is Used

We already know quite a fair amount about how the Internet is used by youth and adults from various inquiry efforts. It is quickly becoming an important feature in creating an effective learning environment (Hiemstra, 1991) for many young people to have access to the Internet at home, school, or some other location. Adults also are finding increasingly more ways the Internet can enhance their lives.

We know, too, that Internet usage generally increases each year for people of all ages. For example, as few as three years ago the U.S. Department of Commerce (2001) estimated that more than half of U.S. households had a PC, more than 80% of those had Internet access, and 89 million people at home or work used the Internet in April, 2001. The following year, Greenspan (2002) suggested that Internet usage had shifted from routine to essential, with 72% of the U.S. population going online once within the previous 30 days. Madden and Rainie (2003) found only a slightly smaller (67%) number in their research effort. This notion of essentiality, and the fundamental change proposition offered in the opening section, are important reasons for better understanding such Internet usage.

The Pew Research Center's Internet & American Life Project (2004) has been one of two national efforts for studying Internet usage on a broad scale. They have provided considerable insight into how, why, and where people of all ages use the Internet. For example, the Center has documented how youth use the Internet in and out of school, how it enriches their lives and/or success in school, what it means to them, and how it improves their abilities to communicate with other young people and even teachers. They also have compiled considerable data on parents and other adults in terms of their Internet usage and attitudes about the Internet.

Levin and Arefeh (2002), for example, looked at what they called the widening gap between youth who readily use the Internet and the general educational approaches of schools. They found that three in five youth under 18 and 78% of those 12-17 go online. In essence, "Internet-savvy students rely on the Internet to help them do their schoolwork" (p. 3), as it helps them do their work more quickly and it provides access to more resources than are available at school. The researchers also describe numerous education related uses of the Internet via five metaphors:

1. The Internet as virtual textbook and reference library where source material for school activities are found.
2. The Internet as virtual tutor and study shortcut where confusion can be clarified and homework can be completed as quickly as possible.
3. The Internet as virtual study group for various types of collaborations with others.
4. The Internet as virtual guidance counselor for various life decisions.
5. The Internet as virtual locker, backpack, and notebook with on-line storage and organizational tools. (p. iii)

Parents with children under 18 also are more likely to use the Internet than non-parents. Allen and Rainie (2002) found that "70% of the U.S. parents with a child under age 18 use the Internet, compared to 53% of non-parents. That means there are almost 45 million online parents in the United States today, and they make up 43% of the U.S. Internet users" (p. 2). Those figures of two years ago no doubt have increased by today.

Pew researchers actually have reported how online activity has grown consistently since they began conducting their research several years ago, although there are signs the growth rate may be slowing (Madden and Rainie, 2003). They note that "Internet users discover more things to do online as they gain experience and as new applications become available" (p. 2). Experience and the quality of any online connections are important factors in use, though, with those having high-speed connections from home usually doing more online than others.

The increasing popularity of the Internet means that it is rapidly become a mainstream source for information, as some Pew researchers have found. Horrigan and Rainie (2002b, 2002c) note that increasing numbers of Americans expect to find what they want to know about such topics as health care, governmental services, news, and commerce on the Web.

Madden and Rainie (2003) also describe recent Pew research related to the changing picture of who is online, what they do when they are online, and the growth in their activity. They note, "[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). They do note a slowing in growth of online users since 2000, but the nature of this current and related ADEC NSF

studies may reveal the potential in growth among rural and other users. The following list summarizes some of their major findings regarding uses made of the Internet:

- High proportions of female Internet users have done activities such as seeking health or religious information on the Internet.
- A large percentage of male users have sought news, financial information, sports news, and political news.
- Among minority Internet users, a large portion of African-Americans has done research for school and sought religious and spiritual information.
- English-speaking Hispanic users report high levels of instant messaging and downloading music compared to African-Americans and whites.
- Those from high-income households and who have college degrees are more likely than those with more modest incomes and education to do a host of things online, including looking for government information, doing online banking, and participating in online auctions.
- The young like instant messaging and downloading music.
- Older Internet users are more likely than younger users to get health information and seek material at government Web sites.
- E-mail continues to be the most popular use, with more people using e-mail than any other activity online. (pp. 1-2)

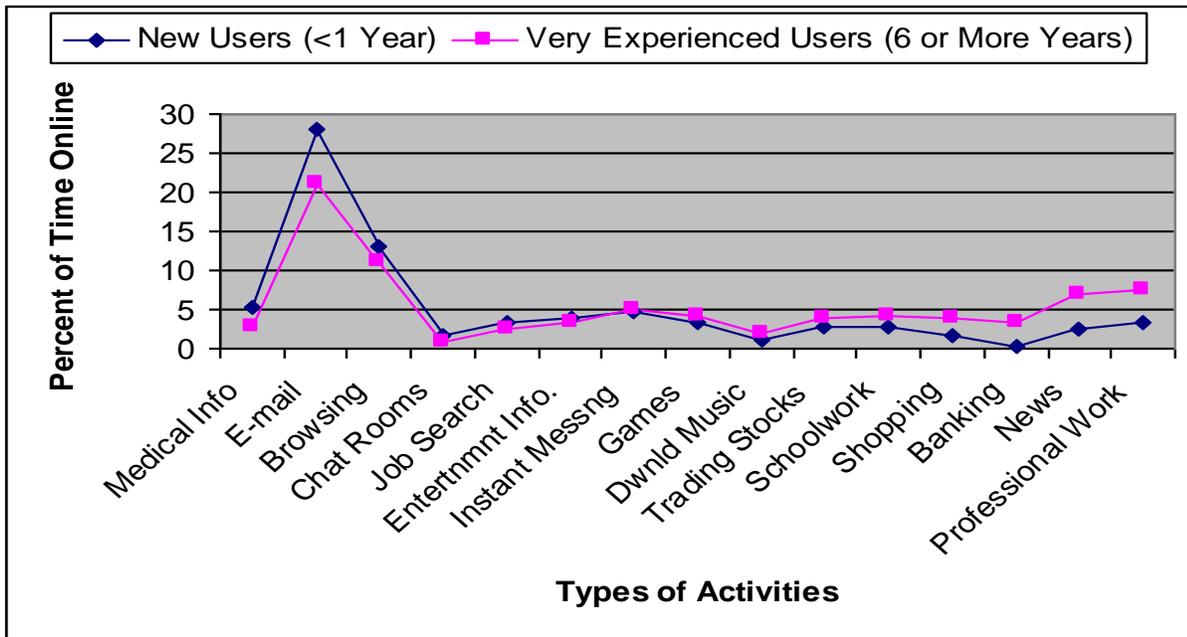
UCLA's Center for Communication Policy is the second organization that has been doing research on the Internet (Lebo, 2003). During a three year period they created a baseline of information on the behavior and attitudes about Internet use arranged around several categories. They compiled national information about the amount of Internet use, who is using it, and the types of uses. Additional information was obtained about how people connect to the Internet, why some people stop using the Internet, and the likelihood that non-users will become users.

Their findings in many ways parallel the Pew results. The UCLA researchers, for example, found that 71.1% of Americans went online in 2002, down only slightly from the 72.3% reported for 2001 but up from 66.9% found in their initial 2000 research effort. The number of hours online actually increased to an average of over eleven hours weekly in 2002. Almost 60% of their subjects have Internet access at home.

Figure B depicts graphically some of the most common uses by what they define as new users and very experienced users. E-mail and general browsing or surfing were the most favored uses. Lebo (2003) details the top five most popular Internet activities in terms of a percentage of respondents reporting the use:

1. E-mail and instant messaging (87.9%).
2. Web surfing or browsing (76.0%).
3. Reading news (51.9%).
4. Accessing entertainment information (46.4%).
5. Shopping and buying online (44.5%). (p. 19)

Figure B: *Use of the Internet: Online Activities* (UCLA Study).



Source: Lebo, 2003.

Apropos to the current study, the Pew researchers recently released a report on their 2003 survey of rural Internet usage (Bell, Reddy, Rainie, 2004). There has been an increase in rural access and usage, but they describe how rural areas still lag behind urban areas:

Historically, Internet penetration rates have been lower in rural areas than in other kinds of communities. 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. (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). They suggest that one reason for the differences in Internet penetration may be that rural Americans are older and less wealthy. Another reason offered is that rural residents say they have “less choice than others about the way they access the Internet” (p. 3). Several other possible explanations they provide are the following:

- Rural communities contain larger portions of new users compared to other settings.
- Broadband adoption, although growing, is less in rural communities.
- A larger proportion of rural Internet users depend on connecting via places other than work or home.
- Rural Internet users are often wary of technology, although once experienced appear to embrace it.
- Rural newcomers are more likely to have mixed feelings about computer technology than urban or suburban newcomers.

In comparing rural users with urban and suburban users, there are some notable differences. For example, “rural users are less likely than urban and suburban users to have bought a product online, made a travel reservation, or done their banking online. Even rural users who have been online a few years or more are still less likely to have ever performed transactions over the Web than their urban and suburban counterparts” (Bell, Reddy, Rainie, 2004, pp. iii-iv). Another difference is that rural newcomers to the Internet are more likely to “hold mixed feelings about computers and technology than are urban and suburban newcomers” (p. iv). They do like to send or read e-mail, use search engines, look up information about a hobby, look for health information, surf for fun or play games, send instant messages, and look for religious or spiritual information.

What does all of this mean for educators and others interested in the learning process? The power of the Internet for learning is just beginning to be understood (Web-Based Education Commission, 2000). Certainly it is providing a multitude of choices for people of all ages. For learners this means the Internet has the potential of resource access any time, any pace, any path, any place. For teachers, administrators, and resource developers it means new opportunities. Ultimately, the current and other ADEC research efforts will provide new knowledge for the learning process, accessing learning resources, and training those facilitating such learning.

### **Growth in Broadband Access to the Internet**

Because access to the Internet is an important component of usage regardless of where you live, broadband access to the Internet is growing steadily in the United States.<sup>1</sup> Although dial-up connections to the Internet still predominate, that predominance may soon be eclipsed by broadband connection options. The ISP-Planet Staff (2002), for example, reported that the rate of broadband Internet use had nearly tripled over the previous two years, growing at a rate of nearly nine percent each month.

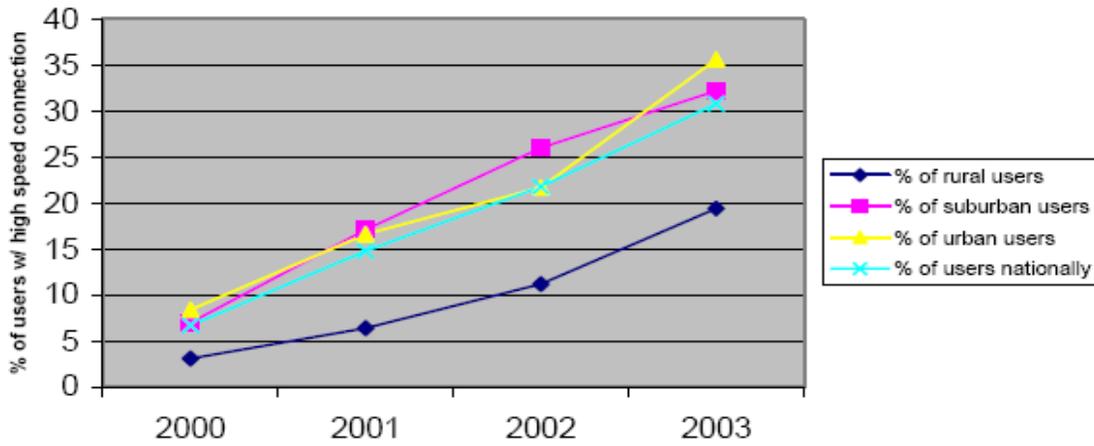
Pew researchers examined broadband growth for home users and discovered there had been a steady growth during a three year period (Bell, Reddy, Rainie, 2004). Figure C depicts this growth for rural, suburban, and urban users. Horrigan (2004) determined some remarkable growth in later research as depicted in Figure D, with an estimated nearly 50 million adults having broadband access to the Internet at home by the end of 2003.

Horrigan also determined that a growing impatience with slower dial-up connection modes overrides a usual steeper price. He even found that “relatively novice Internet users are moving from dial-up to broadband more rapidly than before” (p. 1). Although rural users still lag behind in the rapid adoption of broadband service, infrastructure availability is an important reason for this lag.

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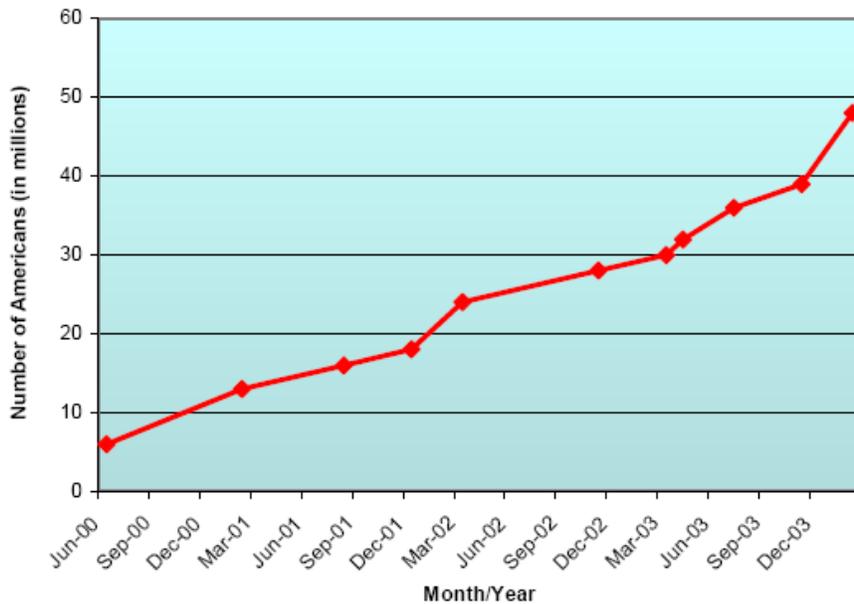
<sup>1</sup> Horrigan and Rainie (2002b) provide some definitions of broadband. For example, the FCC describes broadband as transmission speeds exceeding 200 Kps both up and downstream. This is approximately four times as fast as a standard 56 Kps dial-up modem.

Figure C. *Broadband Growth for Home Users*



Source: Bell, Reddy, Rainie, 2004.

Figure D. *American Adults with Broadband at Home.*



Source: Horrigan, 2004.

Unfortunately, it is estimated that only 10% of Americans who live in rural areas have broadband connections at their homes, compared with “28% of those living in urban or suburban locations” (p. 7)

In many respects, people living in rural, remote areas who do not have broadband access to the Internet, cannot participate well in the expanding information age. Many will have fewer opportunities to enhance their learning efforts. ADEC's NSF project is aimed at discovering new ways to increase such opportunities. In conjunction with the Tachyon Corporation as an Internet provider via satellite transmissions (Tachyon, Inc., 2001), the project seeks to understand the impact of a broadband connection in rural areas.

In addition, the delivery of Internet connectivity at shared spaces such as community centers in rural and remote areas where users congregate in collaborative learning efforts, builds on Schrage's (1999) notions that real innovation comes through new models and prototypes. This current research effort adds knowledge by examining satellite delivery of the Internet in rural settings as a model for enhancing involvement in the Internet revolution.

### **The Research Project**

In the previous section considerable information was presented regarding what we already know about how people use the Internet. The AISEP is aimed at exploring various uses of satellite technology to deliver the Internet to rural, remote, and extension learning centers. Consequently, various educational effectiveness research efforts were established to help evaluate ongoing efforts, validate various applications, and determine several indicators of success.

This research project is one of these independent but coordinated efforts to increase our knowledge of the impact that access to broadband Internet is having on people living in rural areas. In essence, the project is aimed at better understanding how rural American youth and adults think about, use, and embrace the Internet when they have such access via satellite transmissions.

### **Research Objectives**

Based on this desire for enhanced understanding, three broad objectives guided this study:

1. To better understand how youth and adults use the Internet when it is available via broadband connectivity.
2. To better understand what types of resources, databases, and collaborative opportunities youth and adults access over the Internet when it is available this way.
3. To examine the impact on individual learning for youth and adults who access the Internet over a broadband connection.

In addition, several specific objectives were fundamental to the type of data gathered during the research effort:

4. To determine if people carry out any collaborative learning via the Internet.
5. To determine if there are preferences in working alone or with others via the Internet on learning and other activities.
6. To determine if any new learning approaches occur via the Internet.
7. To assess both attitudes toward and uses of electronic dialogue via the Internet.
8. To determine specific factors that promote and obstacles that limit success with the Internet.

## Research Questions

The objectives described above resulted in several research questions:

1. What types of activities do rural youth and adults typically engage in via the Internet?
2. What type of learning resources or Web sites do rural youth and adults access via the Internet?
3. Do rural youth and adults carry out some type of formal or informal evaluation of such resources or Web sites?
4. Do rural youth and adults carry out any collaborative opportunities over the Internet?
5. Does experience with the Internet result in different uses, skills, or approaches to learning for rural youth and adults?
6. Are there noticeable differences in uses or learning efforts via the Internet when those efforts are self-directed and/or carried out in collaboration with one or more other people?
7. What works the best as rural youth or adults use the Internet for learning and other purposes?
8. Does using the Internet have an impact on school activities for rural youth and an impact on meeting life needs for rural adults?
9. What kinds of things help or limit rural youth and adults as they use the Internet?
10. Do rural youth and adults receive the help they need in using computers and the Internet?
11. To what extent do rural youth and adults talk or message with others via the Internet?
12. What kind of an impact does having broadband access to the Internet by rural youth and adults have on a community?

## Timeline

This researcher became involved with the ADEC efforts in the fall of 2002. He was asked to design a research project to gather data from three sites, two in Michigan and one in Idaho, that had broadband Internet access via satellite technology. A research proposal was developed in the early winter of 2002-2003. Feedback was provided by ADEC's President and members of the Educational Effectiveness Committee during the winter months. In addition, he made site visits to the three locations to make initial contacts and begin a process for later data gathering.

Final approval of the proposal was received in the spring of 2003. An interview schedule for youth and one for adults, necessary consent forms, and information for an IRB approval form were drafted and approved during the late spring. Because there was a high likelihood that some subjects in Idaho would have English as a second language, the consent forms also were developed in Spanish to promote maximum understanding of the research project and enhance participation. (Appendix I contains samples of these documents.) Plans were developed and finalized for returning to the three sites for data gathering purposes.

Thus, site visits for data gathering purposes were made in July, 2003, to the two Michigan locations where several youth and adults were interviewed and participant observations made. In addition, administrators and volunteers in both sites were informally interviewed to help the researcher better understand such factors as hours of Internet availability, processes for signing in and out, how teachers and volunteers were utilized, general impressions on how things were going, and assessments on how weather or other factors affected operation of the sites. Another site visit to Idaho was made in August, 2003, for additional interviews, participant observations, and discussions with administrators, teachers, and volunteers to gather information similar to that described above. Various qualitative memos were

written during these visits as a means for recording researcher observations and aiding an evolving understanding of what was taking place.

Interview data were transcribed and placed into a digital format during the early fall of 2003. Subsequently, preliminary analyses took place throughout the fall and winter using a combination of NVivo qualitative software (described in a later section), SPSS quantitative software, and iterative examinations of the qualitative information to determine, combine, enhance, and refine coding categories. Periodic feedback from the ADEC President and Educational Effectiveness Committee members aided in this process.

Subsequently, the data were analyzed as a prelude to the writing of this report during the spring of 2004. Feedback was obtained from the ADEC President and Committee members in the late spring during a face-to-face work session and final refinements were completed soon after that.

## **The Research Sites**

### Kettunen Center

The first site visited during the data collection process was the Kettunen Center in Michigan. It is a private organization funded, in part, through the Michigan 4-H Foundation. It is located in a very rural area in the lower peninsula near Tustin, Michigan, about 15 miles south of Cadillac. The Center is a complete conference and retreat facility that provides a variety of training or retreat opportunities to youth and adults throughout Michigan. This involves such varied activities as Elderhostel programs, Correctional staff training, and programs by the Department of Natural Resources. People from other states also participate occasionally in training programs. They can easily handle 150 participants with their lodging, food service, modern meeting rooms, and communications equipment, although larger groups (up to 227 people) can be accommodated when bunk bed housing is fully utilized.

One large user of the Center is the 4-H program, as specialists from Michigan State University travel there to train volunteer leaders in various project, content, and subject matter-specific areas. They also facilitate such efforts as hands-on environmental science and outdoor education programs for youth, the 4-H Trackers program, and programs related to learning and science through the arts.

The researcher worked with the Center Director, who is also Associate Program Leader for the Foundation, a Technical and Operations Coordinator, a Programming Coordinator, and the nearby County 4-H agent. The satellite dish is installed as a roof mount and it feeds to a 12 station computer lab located in the basement area. The lab also has projection equipment to facilitate electronic teaching.

The Kettunen Center is somewhat unique among the various sites throughout the United States involved with this ADEC project. Participants typically come to the Center for only a short period of time and may never return for another event. In addition, their utilization of the computer lab for purposes of Internet access usually is dependent upon the leaders and facilitators of programs or activities underway during that event. Thus, responses from such participants to any interview questions may differ in unknown ways from those involved with the other two sites.

### Kinross Recreation Center

The Kinross computer lab is housed in the Recreation Center and complex of the former Kincheloe Air Force Base in Kinross Township, Kinross, Michigan. This is in a very rural area of the Upper Peninsula about 20 miles south southwest of Sault Ste. Marie. After the Base closed in 1976, the Township was given title to certain lands and recreational facilities including the recreation center. The Base closure created considerable hardship on the community. The subsequent location of prisons on some of the property has provided new jobs, but the area remains economically distressed.

The Recreation Center is one of the bright spots in the community as it provides education, community, and recreation activities to area residents. The computer lab houses about 15 computers and peripheral equipment. The satellite dish is located on a raised platform adjacent to the Center.

The researcher worked with the Michigan State University Cooperative Extension specialist who coordinates 4-H and Youth programs in the area, the Center Director, a Deputy Township Supervisor, and the Coordinator of the computer lab. This latter person also teaches some computer courses and works with volunteers who do some teaching in the lab.

During the summer the lab is open from late morning until early evening. During the school year it is open daily from 3-9 p.m. Youth wishing to use the lab must provide signed parental permission slips. A number of adults and youth regularly use the lab, whereas others use it occasionally or on a need basis.

The researcher had an opportunity to drive around the community at the time of the interviews. Although there appear to be several middle income homes, especially as one drives a few miles away from the community, an impression is left that many of the community residents are what could be classified as low income. Many homes are not kept up very well and what look like abandoned or unusable automobiles are parked in several driveways.

### Marsing Resource Center

The Marsing Resource Center is in Marsing, Idaho, about 30 miles south and west of Boise and just west of the Snake River. Marsing is an economically depressed, rural community of around 900 people in Owyhee County. The County has a population of less than 11,000, of which 23.1% are of Hispanic or Latino ethnicity. Much of the Spanish-speaking population lives in a partially transient migrant labor camp near Marsing.

The Resource Center is housed in the former Parish house of the Nazarene Church (rented for \$1.00 per year). Although the building is quite small, it houses about 15 computers connected to the Internet, supporting peripheral equipment, a kitchen area, a restroom, and an office. The satellite is located on the roof of the building. The Center has a part-time Coordinator, some paid and volunteer part-time teachers, and several people who serve as board members to help with such areas as finance, administration, and fund raising. A volunteer spends many hours each week serving as the technical director.

The researcher worked with the Coordinator, an Idaho Extension Associate for State 4-H and Youth, a retired Extension Associate who had worked with 4-H and Youth programs in Owyhee County, a New Communities Project Coordinator for the University of Idaho Extension, and a New Communities

Project Assistant (a native Spanish speaker). Both of the latter two individuals have taught courses or coordinated programs utilizing the Resource Center computers.

The computers appear to be much in use and demand. Classes are conducted periodically, after school programs are held, and people use the computers and the Internet to meet various needs. Some programs are conducted in Spanish.

### **The Research Subjects**

It was determined early in the proposal stage that because the researcher lived some distance away (in Upstate New York) from all three sites and did not have time to establish rapport with any of the people who used the computer labs, volunteers willing to be interviewed would be sought. It was initially hoped that 25-30 people who had used the computers would be found at each site through purposeful sampling (Bogdan & Biklen, 1998). Various incentives or means for enhancing participation were considered.

Several of the people mentioned in the previous section assisted the researcher in finding people willing to participate in the interview process. For example, in Tustin the County 4-H Agent was coordinating a summer camp at the Kettunen Center during the time this researcher was available for interviewing and agreed to recruit participants. Her support of the project and communication with parents and those who had signed up for the camp encouraging them to participate in the study was aimed at obtaining 15 or more youth to be interviewed. It was anticipated, too, that ten or more subjects could be solicited through a snowball sampling process (Bogdan & Biklen, 1998). This involved asking those who had already agreed to participate to identify friends that the researcher could approach during the camp registration process.

Unfortunately, at the last minute several either decided not to go to the camp or not to participate in the interview because of other activities they preferred engaging in at the time. In addition, no additional subjects were found during the registration process. Thus, only five people for whom signed consent forms were obtained actually participated. This points up the difficulties in obtaining volunteers at a distance, especially when the incentives are low and distracting activities in a camp setting exist.

At the Kinross Recreation Center, the computer lab Coordinator supplied a list of names to the researcher for telephone contact via a purposeful sampling procedure. It was quickly discovered that many of the telephone numbers were either no longer in service, no one ever answered, or calls were not returned to messages left on an answering machine. Telephoning by the researcher only resulted in eight people saying they were willing to participate and consent forms were mailed prior to the site visitation. The computer lab Coordinator and the Center Director also attempted to recruit people and signs were placed in the Center office describing the upcoming interviews, mentioning how important they were to the Center, and asking for volunteers. They added the names of five more volunteers, obtained the necessary consent forms, and coordinated the scheduling of these people along with the times the researcher had established via his phone contacts. The researcher arrived half a day early and drove around the community to make observations. He also contacted some of those already scheduled and asked for recommendations of friends to approach via the snowball sampling technique. He was able to obtain two more youth volunteers along with the appropriate signed parent consent forms. Unfortunately, one of the people who had volunteered by phone did not show up and results from one of the interviews became unusable, resulting in a total of 13 interviewees. This further points up the

difficulties in obtaining volunteers at a distance, especially when the interviewer is unknown and many other summer activities compete for time and interest.

Thus, a different approach was utilized to obtain more interviewees in Idaho. Describing the need for a good sample of volunteers to those assisting in Idaho, The Resource Center Director set about finding adults to be interviewed. She personally contacted numerous people who were both frequent and occasional users of the computer lab, described the research project, explained its importance to the ADEC effort, and asked for their assistance. Two of the people affiliated with Cooperative Extension pulled together incentive gift bags for the youth consisting of treats, movie tickets, and paper products. They, too, then worked hard to recruit people. Between these two efforts, 34 interviews were conducted, the results of one was unusable for research purposes, resulting in 33 finished forms. In small rural communities, a great effort is required to obtain adequate numbers of interviewees, and personal requests by top officials and incentive gifts for youth may be necessary to insure large numbers.

Table 2 details information about interviewees from the three sites where there were a total of 51 usable interviews. Even though the Kettunen Center young people had not already used the computers there, all had used high-speed Internet at their school, home, or at a local library. Thus, they were interviewed anyway and later data analysis efforts showed their responses did not appear to differ from those at the other two sites. Therefore, they were included in the overall analysis efforts. More information about the demographic descriptors used in this table are described in the next section. Although the numbers were lower than initially desired, the interview data were rich and revealed much about the use of the Internet in these rural areas.

Table 2. *Descriptive Information on Interviewees from Idaho and Michigan.*

Age Category	Gender		Race			Experience Level	
	Female	Male	White	Hispanic	Other	Experienced	Inexperienced
Youth (8-17)	15	15	18	10	02	21	09
Adult (19 or Older)	14	07	20	00	01	16	05

### **Data Gathering Process**

This research effort utilized primarily qualitative data collection techniques in meeting the objectives and answering the questions shown in earlier sections. A semi-structured interview schedule was designed as an aid to gathering needed information. It consisted of several fairly open-ended questions that permitted the researcher to ask similar questions of each participant, but then to probe as needed to help extract information from them during face-to-face interviews. As noted earlier, samples of the interview schedule are contained in Appendix I, as well as the consent forms, signed versions of which were obtained before each interview. Written notes were completed during each interview and two tape recordings (a primary tape recorder and a back-up tape recorder were utilized) obtained for each subject.

In addition, by observation, perception, or via initial questions, information pertaining to several demographic categories were obtained for comparison purposes. The selection of these categories and the decisions made about descriptors within some categories are somewhat arbitrary. However, they

provide an enhanced means for descriptions and for comparisons. Those used for analysis in this report included the following:

Age. Adults were designated as those people 19 and older; youth were designated as those individuals 18 and younger. Generally, people are finished with secondary school by the time they reach 17 or 18 and this helped in the decision making process. Obviously there can be respondents with differences in knowledge, experience, viewpoints, and even attitudes about the Internet across and within the two age categories, but sample size limitations precluded more divisions.

Experience Level. Those respondents who had been exposed to the Internet for less than one year were dubbed inexperienced. Those who had been involved with the Internet for a year or more were labeled experienced. Direct questions were asked about how long a person had been using the Internet and responses to other questions helped in verifying such answers. Arguably, these designations are somewhat subjective as people obviously “take to the Internet” at differing rates. However, because the UCLA study (Lebo, 2003) used less than a year for what they called “new users,” inexperienced in the current study basically means the same thing. Again, small numbers made it practical to place all others in the experienced category for descriptive and comparison purposes.

Gender. Female and male designations also were made by personal observation.

Race. By observation only, four designations were utilized. In essence, no one was asked to designate their race, so the researcher recorded his perception about this characteristic after each interview. The categories were American Indian, black, Hispanic, and white.<sup>2</sup> Small numbers of minority subjects resulted in using white and minority for most comparison purposes. However, in the qualitative portrayal of data through the subjects’ words, the four designations were retained.

Participant observations by this researcher of people using the computers, interactions among people in each setting, and visual assessments of the computer labs and the community setting at each site also added useful information. In addition, the researcher wrote “memos” and field notes throughout the data collection and analysis process to capture ideas, insights, and speculations about the study.

## **Data Analysis Procedures**

Qualitative data analysis has become a widely accepted technique. It allows a researcher to uncover the meaning of why people do what they do, how they think about what they are doing, and what resulting impacts exist on their lives through respondents’ own words. Merriam and Simpson (1995) note that qualitative research is appropriate for naturalistic inquiry, interpretative research, field study, and participant observations. Such research strategies fit well with efforts to understand and interpret the impact of the Internet on people living in rural and remote areas of society.

QSR International’s NVivo software (2002), supports qualitative research processes in various ways. It utilizes various means for handling, reducing, rearranging, linking, and displaying data so new understanding of situations, experiences, and observations can be gained. It facilitates the constant

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<sup>2</sup>There are numerous ways of referring to racial categories and pro and con arguments for each. For this study, a decision was made to use these four descriptors as they appear in other documents shown in the NSF database.

comparative method of data analysis involving a cyclical process of data collection, coding, and assessment that helps the researcher obtain a framework for understanding and describing the data (Glaser & Strauss, 1967). In essence, the ultimate goal of qualitative research is to extract significant themes, insights, and threads of meaning in complex data sets. The retrieval power, storage capacity, and speed possible through computer software made the NVivo software an important aid in the data analysis process for this study.

Digitized audio tape transcriptions, researcher-derived assessment memos, and various supporting materials can easily be imported into the software's database. Data can be coded and manipulated through mouse actions and/or key strokes as an understanding of the available information increases. The software also facilitates the asking of questions and subsequent search results are available in the form of various types of reports. Coding reports showing the words of respondents organized around the categories created by the researcher served as the main source of output for this research project. They enabled the researcher to carry out recoding efforts, when appropriate, and facilitated intuitive, iterative, and even quantifiable decisions about the importance of respondents' words.

The initial coding process involved reading the transcribed interviews two or three times depending on the complexity or length of various passages in an interview. During this process the researcher made notes, wrote additional analysis memos, and formulated tentative codes or descriptors for specific meanings that began to appear in the iterative process described above. Initial coding categories (referred to as "nodes" in NVivo) centered on several categories:

Impact on community	Experience level with the Internet
Barriers/hurdles/problems	Type of Internet usage or activity
Success promoters	Education or learning activities
Enjoyment level	Online uses in terms of learning
Skill transference to life	Self-directed learning preferences

In addition, the demographic characteristics of age, gender, race, and experience level were fully formulated. Ultimately, as Figure E shows, 39 categories emerged during the coding and recoding process. Many of these categories became either broad areas for analysis as shown in this report, they supported the analysis efforts within these categories, or they served as a basis for a few null hypotheses useful in subsequent quantitative analyses. As the intent was to obtain an initial understanding of Internet uses in rural areas, working hypotheses to steer the analyses were not formulated. However, future research efforts that build from this report may now be able to develop such hypotheses as bases for gathering more specific information.

Quantitative analyses were minimally helpful in this research effort because of the small numbers. In some cases simple tallies of various categories or components within a category aided in describing the findings. It was originally intended that statistical comparisons would be made. However, dividing the sample into groups based on the various demographic descriptors resulted in such small cells that only a few comparisons (a testing of the null hypotheses) were deemed useful as a means for explaining or showing differences.

SPSS (Statistical Package for the Social Sciences) is computer software designed to assist in various quantitative analyses. Originally designed for mainframe computer use, it has been available for personal computers for several years (George & Mallery, 2002). Version 6.1 was used in the current research project. Various statistical tests, tables, graphs, and other means for describing or comparing

Figure E. *Project Coding Categories.*

age	gender	parental involvement
barriers experienced	grade level	quotable material
birth order	home Internet access	race
chat rooms	impact at school	receiving necessary help
comfort zone	impact on learning	recommendations
communicating with others	Internet and school	search engine experiences
e-mail experiences	Internet experience level	self-directedness
e-mail preference	Internet search preferences	successes experienced
employment info	Internet uses	teachers and Internet
enjoy using Internet	miscellaneous	typing skill
evaluating web sites	online course	web sites
experienced Internet uses	overall experience	working more with Internet
family responsibilities	parental control	working with others

information that has been digitally inputted as data sets are attainable. Key strokes and mouse actions are used to manipulate and display corresponding reports.

As noted above, only a few statistical comparisons were made in this research effort to examine differences among various groupings of the respondents. A correlation coefficient can be used to represent the linear relationship between two sets of data or categories. For example, are individuals with some demographic characteristic responding to interview questions the same or differently than those with a different characteristic, such as experienced versus inexperienced respondents. The Spearman rank order coefficient depends on the ranking of responses rather than the actual values and it is useful when small numbers of subjects are utilized. Thus, the Spearman coefficient was used as another means for better understanding similarities and differences in respondents via four null hypotheses described in the next major section.

### **Limitations**

The data obtained from interviewing 51 rural youth and adults were rich in many ways. New insights about using the Internet when broadband access is available were obtained. In several instances, the interviewing process enabled a drilling down below the initial surface answers to obtain perspectives, experiences, and unexpected treasures. However, as in any research effort dealing with humans, this study contained several potential limitations. Thus, any interpretations, projections, conclusions, and recommendations need to be considered in light of this.

For example, in any qualitative study there is the potential of bias in selecting and interpreting the data. Throughout the analysis process several procedures were used to reduce such bias. As recommended by Bogdan and Biklen (1998), the researcher documented research processes through field notes and memos that addressed observations, reflections, and a growth in understanding. Interviews toward the end of the data analysis efforts were enhanced by earlier interviews in that new follow-up questions could be asked if needed to clarify the researcher's perceptions. In addition, regular telephone

conference calls with the ADEC President and members of the AISEP Educational Effectiveness Committee was a source of feedback.

Becker and Geer (1960) talk about the importance of determining how widely a concept is spread across multiple situations. In this research participants were recruited from three sites and there were different demographic categories. These differences were important because they enabled the researcher to examine the answers across varied perspectives.

It may have been more instructive if more people had been interviewed. However, time and logistical constraints prevented follow-up visits to gather more information or to seek clarification of themes and insights from previous respondents. Subsequent research efforts that build from the information in this report will enhance our understanding.

Somewhat in that same vein, it would have been preferable to have had more minority subjects, both youth and adults. In addition, subsequent research efforts should include interviews with parents of youth who use computer labs and public school teachers who might be able to speak first hand about the impact on performance they have seen among young people who use the Internet. Another source of useful information might have been community leaders or officials who could judge whether or not access to broadband Internet in small rural communities makes a difference in the quality of life. Finally, no effort was made to interview non-users to ascertain why they did not use the computer labs.

Finally, the decisions this researcher made about codes, categories, demographic descriptors, and meanings of interviewees' words in many respects were arbitrary in nature. Even the assumption made that interviewees will always answer questions openly and honestly is subject to error because it is impossible to always know the intent or motivation behind answers to questions. Participants' words can't always be taken at face value and the role of the researcher is to look at connections to larger forces existing within their setting, to do some interpretation, and to tease out the threads of meaning and richness in the data. Even how the researcher is perceived by respondents as an outsider is another factor that can add complexity to any answers received.

As such situations are true, of course, in most research projects, as many safe guards as possible were taken in this research effort. As an illustration, only the researcher did the interviewing so intonation, the use of language, and interpretation differences that could arise if there were multiple interviewers were eliminated. Considerable time was taken at the beginning of each interview to explain why it was taking place, that all responses would be kept strictly confidential, and that a person could choose not to answer a question at any time or even to end the interview if that is what they desired.

Although a person not connected with the research effort was hired to transcribe the audio tapes into a digital format, the researcher listened to each tape recording while reading the transcripts for purposes of enhancing accuracy. Any needed corrections were typed by the researcher onto the digital files. The feedback from research colleagues during a face to face meeting toward the conclusion of this research effort also provided useful information in guiding the development of the final report.

Thus, this research project should be only one of many efforts designed to better understand how rural youth and adults use, think about, and depend on the Internet. The coordinated ADEC research efforts and previous Pew and UCLA studies alluded to earlier are important contributors as our understanding of the Internet's impact in rural communities is increased. Ultimately, though, research on this topic must be an ongoing endeavor.

## Internet Uses

An important area of interest was to determine how rural subjects in this study used the Internet. During the interview each respondent was asked to describe the types of activities for which they typically used it. Most respondents, youth and adult, talked quite freely and enthusiastically during their responses. For more hesitant people, those who had some initial difficulty in coming up with uses, or those who seemed to have additional uses they had not yet mentioned, various examples, prompters, or probing questions were used to elicit more comments. This frequently resulted in more in-depth answers, ideas, and even reflections by interviewees.

As might be anticipated, rural people make a wide and varied use of the Internet when a broadband connection is possible. The subjects interviewed for this study, for example, checked to see what was playing at the four screen cinema in the next town, learned what they could about birds and even chickens, garnered information to help them obtain child support, obtained help, hints, or cheat codes for playing various games, made reservations for an upcoming vacation, and looked up words in an American Indian language, in Spanish, or in Dutch. They also looked up information about Big Foot, found recipes, listened to music, helped their stamp collecting hobby, found pictures to draw for a school art project, found help for homework assignments, looked at Web sites about irises, obtained information needed to help them write a grant proposal, and talked with friends or relatives about school, life, and numerous other topics.

Following is a sampling of such uses with their own words.

A 14 year old female and experienced Internet user from Michigan put it this way:<sup>3</sup>

*Okay, e-mailing, searching, 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 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 used 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 lookup a lot of stuff on military equipment and everything in general and just to surf.*

A 13 year old female and beginning Internet user from Michigan noted,

*I e-mail my family in Texas . . . and sometimes I e-mail my friends and then I get to play game s. . . You have to go to Launch.com and then I mostly listen to a song or a mix.*

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<sup>3</sup>If a person had a racial designation of white, the majority of the subjects, that designation is not included when describing who is making a quoted statement. However, for American Indian, black, and Hispanic individuals, that racial designation is included.

A 14 year old male and experienced user in Michigan also had a rather eclectic approach:

*. . . like sports games. Research on homework, just to have fun, you know. . . To chat, send e-mail, keep in touch with friends. I have to check my e-mail, I bet I've got 400 e-mails . . . Like Big Foot. I want to find out if he's real so I go to Ask Jeeves, ask a question, you can go wherever you want to find information on that. I looked up my ancestors, too. Like I did a project on Japan. We had to find out currency, a map, and five interesting facts and capitals and, you know, like that.*

A 47 year old male and beginning user from Michigan had only recently discovered the Center but he had dove into using the Internet enthusiastically:

*I've used it for references on different things, for medical problems, and I listen to a lot of country music there. . . they have different types of games down there that I play 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's called cancer.com where you can speak with other people who were diagnosed with cancer.*

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 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 or would just type in various Web sites and I go there to see if they have anything that I can use.*

A 40-59 female and experienced user from Idaho who also does some teaching for the Center makes several uses of the Internet:

*I bank on line. I buy on the Internet. I save a lot of money buying instead of going to stores. I do a lot of research for the classes I teach for the center itself, for what I purchase for them. And, of course, e-mail, keeping track of my family. I also book reservations for hotels for family vacations on the Internet . . . I do play cribbage online. When I got my digital camera I wanted to know a lot about it so I typed into Google what kind of camera it was and asked if there were any accessories available.*

An 11 year old Hispanic male and a beginner from Idaho, was the first to introduce this researcher to the notion of cheats and the kind of help you could find on the Internet for playing games:

*Like when you want to get cars or something on these games, you get games and then you get cars and find more cheats on the computer.*

Interviewer: *What does that mean, cheats?*

*It means like if you're cheating.*

Interviewer: *Oh, I see, it tells you more than you can find elsewhere. Is there a particular site that you use for this?* (He then looks up with an amused look that suggested he thought the interviewer didn't have a clue and replied with a simple answer.)

*Cheat.com*

He then described how he relayed information to his friends simply through his enhanced memory:

Interviewer: *What do you do then, read it, print it off, what?*

*I read the stuff and then I talk to my friends.*

Interviewer: *So, you don't have to write it down, you remember it?*

*Yeah.*

Interviewer: *Has the computer helped you, then, to improve your memory?*

*Yeah.*

A 61 year old female and a beginner from Idaho, gave this interviewer some new insights, and it was a delightful conversation:

*I use the Weight Watchers site a lot because I'm a member . . .*

Interviewer: *Are there certain web pages that you go back to frequently?*

*Well, like the Weight Watchers one and there's one . . . its twofatchicks.com (it turned out to be threefatchicks.com but this researcher had to wade through some porn sites to finally find it) and it has a lot of low cal recipes on it.*

Interviewer: *Walk me through how you do it, say on finding recipes, say a low cal recipe.*

*Okay, I usually get into a recipe site and then I'll type in the type of recipe I want but I'll never type in cream pies again. (A long chuckle followed.) That gets you where you don't want to go . . . You have to be specific.*

A 19 year old male from Idaho who was an experienced user, also had taught classes at the center, and displayed some sophisticated insight on how to increased personal knowledge:

*I use it to find information on things that I'm interested in, like a book I'm looking for I'll go to the Internet and find the author and title and its rating. And I help the kids on the Internet, help them build their Web sites . . . Like if I see something on the news or something like that and it interests me and I want to find out more about the subject, I'll go . . . into the Internet MSN home page stuff, and then I'll go to Mamma.com, my search engine, because it's the best one I found and . . . type in keywords about the subject, certain things about it, maybe specifics that I want to know about it and it will bring up 30 or 40 Web sites usually. I can just run through those and through the summary on the search engine and I can usually find what I'm looking for pretty quick.*

A 42 year old female and beginning user in Idaho made a very interesting use of the Internet:

*I like to train, I like to run, so I look for Olympic records and things like that, how close I want to get to it.*

She followed that by describing some very practical uses and a use based on her nostalgic memory of growing up in Michigan:

*Oh, I look up information in order to get my child support, how to hire a lawyer, just tons of information if you can get it. . . I do look up things in Michigan, how much their ranches and farms are for sale, going back in time, still living in the past. You get a picture on there where you can see how people used to live.*

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. . . I help with my typing – it helps with my typing. I look up things. . . I go to MSN and then I go to enter search and, say, I go, if I want to look up pets and it gives you a lot of details about pets all these references that have pets.*

A 70 year old female and a self-described novice user in Idaho knew what she could do and what she couldn't do:

*I learned on my own to get and send e-mail and that's all I can basically do . . . What else do I do? Well, I think that's it, except my few attempts at trying to get on the web. You know, it will say go to a Web site for additional information like in the paper and I go to the Web site and I can't find a hotlink. I don't know what a hotlink is and so I can't get to the additional information, so I've kind of given that up. But I think if, and when, they offer a class, then that will be my next class.*

A 14 year old Hispanic male in Idaho who is an experienced user declared,

*During school I used it for homework. I use it for music and play games and to get some information about something.*

A 13 year Hispanic male and experienced user from Idaho was very succinct in his declared uses:

*Play games, research, and listen to music.*

Finally, a 10 year old Hispanic male and inexperienced user from Idaho was equally brief, but knew how he wanted to use the Internet:

*Cartoons, cartoon network.*

Interviewer: *Anything else?*

*WB. Like Warner Brothers.*

Interviewer: *What do you look for when you go in there?*

*Like games.*

The sample quotes above reveal how many people, both youth and adult, intuitively understand that their user-derived needs often can be met through the Internet. They are asking interesting questions about life, personal interests, and essential needs. Having a means for fairly quickly and efficiently meeting such needs, becomes an important tool in developing both lifelong and self-directed learning skills (Brockett & Hiemstra, 1991; Hiemstra, 2002). There is discussion later in this report about how rural users evaluate information they obtain from the Internet and the important role teachers, administrators, and others need to play in knowledge assessment and skill development.

There were a number of additional interesting conversations about Internet uses. These are contained in Appendix II

As noted in the Research Project description section, this research effort utilized mainly qualitative techniques, but incorporated some quantitative material when appropriate. Therefore, to help paint a broader picture some tables and charts are utilized below. For example, the Pew and UCLA research efforts described in the opening section reported quantitatively on the way the Internet has been used by people throughout the United States. Many of the findings reported in these studies provided models for reporting what was found for the rural subjects in the current study.

For example, Figure F shows a line graph for all subjects in the current study utilizing the same type of activities as depicted in the earlier Figure B. It should be noted that for the subjects in the current study, no one reported using the Internet to trade stocks, suggesting a possible hesitancy or perhaps even distrust of it for such interactions, although only small numbers of people, especially adults, were involved. It also needs to be noted that three additional activities were specifically noted by at least two respondents as the way they used the Internet: (a) Find information related to a hobby, (b) take an online class, and (c) find travel information or make travel reservations. Thus, these categories are included in the following figures. In addition, the “Y” axis is based on the number of respondents who reported a particular type of activity rather than a percent of the time spent on the Internet as was depicted in the UCLA study used as the basis for Figure B.

For visual comparisons only, Figure G shows a comparison between what experienced subjects used the Internet for in both the current study and the UCLA (Lebo, 2003) study. Careful interpretation is required because each study defines experience in a different way. Additionally, in the “Y” axis the UCLA study used percent of total time online, whereas in the current study it is a total number of respondents saying they used some of their online time for a particular activity. Thus, in many respects there is a real apples versus oranges situation in comparing the results.

Even given those limitations, though, visually some stark differences exist. Experienced rural users in the current study, for example, seem more involved with browsing, searching for entertainment information, playing games, downloading music, and shopping. They had less involvement with instant messaging, making financial transactions, and any professional work. When both experienced and inexperienced rural subjects are included together, unlike the Pew and UCLA studies, rural subjects in the current study reported more involvement with general browsing activities and playing games; e-mail activities was the third most popular use. Arguably, a case could be made that browsing involvement was actually higher if such activities as seeking entertainment, hobby, and travel information were included. One major difference in the current study is that no effort was made to determine the actual amount or percentage of time spent on any particular activity, so it is possible, for example, that some respondents actually spend more time overall with e-mail activities than with other uses of the Internet.

It seems clear that experience makes a difference in the way people both use and think about the Internet. Some the rural people in the study found themselves using it more as they gained experience. Some found their efficiency as a user enhanced. Advanced search skills and abilities was another thing noted by several. General sophistication as a person who understands computers and the Internet was mentioned, too. This parallels the findings of the Pew researchers who found that time online promotes competence, self-assurance, and efficiency (Horrihan & Rainie, 2002a).

Figure F. *Use of the Internet by Rural Subjects: Online Activities.*

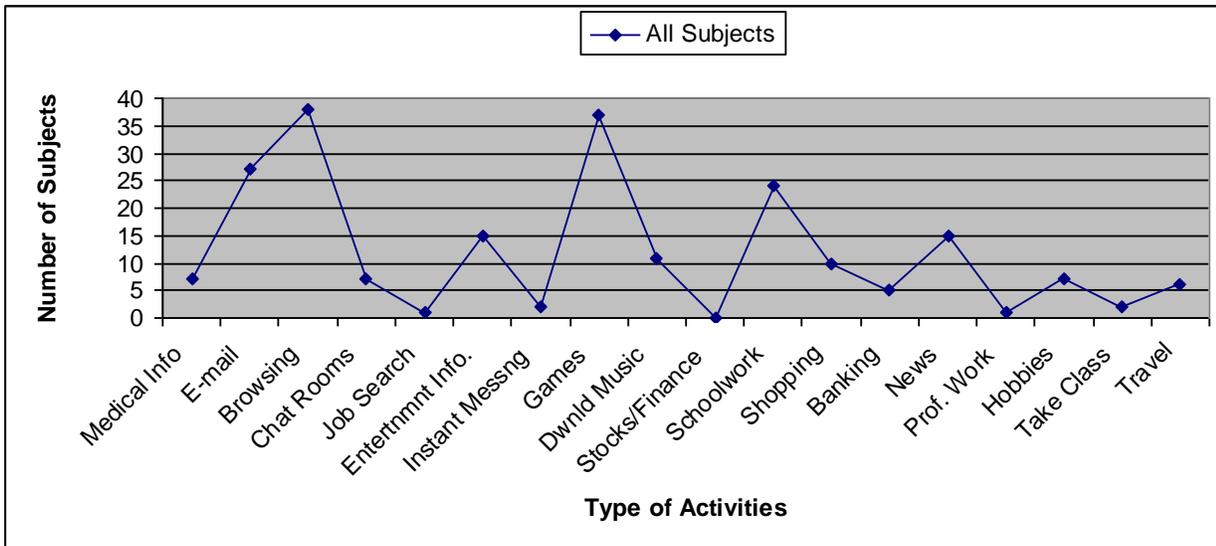
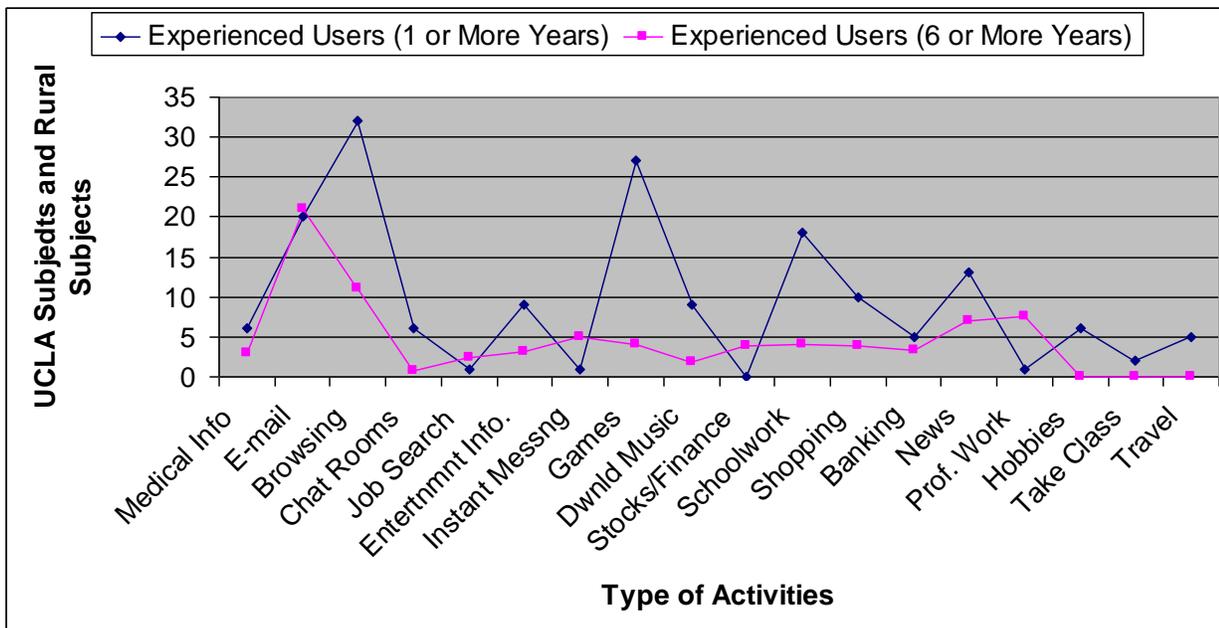


Figure G. *Use of the Internet: Comparing Experienced UCLA and Rural Subjects.*



Actually, an observation this researcher made after interviewing only a few subjects was how quickly people living in rural and remote areas, often with little prior exposure to computers and the Internet, picked up the language, skills, and comfort associated with experienced users in more urban areas. Many showed a surprising sophistication and they were able to verbalize their growth in skill and knowledge. Some of their own words tell this story well.

A 14 year old female from Michigan who was an experienced user put it this way:

*Well, I can search things a lot better. Now I know that there is so much up on the Internet.*

A delightful 11 year old female in Michigan who is an experienced user said this with enthusiasm:

*Now is can go to Disney Channel without my Mom's help. Now I can do my homework by myself. If I need help I'll ask Tyler. I can do lots of things more funner [sic]. Since I have been with computers I thought it would be fun to go online. Its amazing how you can do it.*

A 13 year old black female in Michigan and an experienced user who now had grown past the Disney Channel said,

*When I first started using it, I would just do stupid stuff on the Internet, like Disney or something, but now like I know how to go to something specifically instead of going to more different sites to get to this one and to that one.*

A 47 year old female in Idaho and an experienced user talked about her growth:

*Well, yes, because I was very ignorant as far as computer skills and I didn't even realize . . . well, when we first got the Internet, I would go to Web sites that people would tell me about or basically for e-mail. And sometimes there would be a Web site come in through the e-mail but I didn't even realize there were search engines, okay. I know that sounds dumb.*

A 12 year old Hispanic male in Idaho and an experienced user said,

*I don't run into so much problem as when I first started using it when I didn't know what to do with dot coms and everything.*

A 55 year old female from Idaho with experience talked about her efficiency and growing skill:

*Well, I've learned to be a little more overall efficient on the computer. . . As I use it more I've found my way around a little better.*

Self-realization of growth and the potential of the Internet was expressed by a 13 year old Hispanic female in Idaho who is an experienced user:

*When I first started I just went on cartoonnetwork.com to play games, but then I realized that there is more to going online than games. I wanted to look up more.*

A 30-39 year old female in Idaho with experience was quite clear on how she felt she had changed as an Internet user:

*. . . First of all, the knowledge of the Internet. I didn't even know I could do that much. Probably a lot, I can use it now. Oh, I've learned how to type. Well, I've learned a lot more altogether because not only have I learned how to use the Internet, but now I know how to look things up without having to spend all day looking at a book and about everything you want to find out.*

The high use of the Internet by rural subjects for games is an interesting phenomenon that needs further study. It would be possible to criticize the time being spent in playing games, but if that option helps people stay interested, increases their keyboarding skills, and become more familiar with the Internet, it has value. In essence, many users may be learning some computer basics through online gaming that will lead to more uses of the Internet in the future. Some may even graduate to the higher performance skills required for more serious online games. Perhaps a budding developer of a new online game that will have international popularity resides in one of these rural locations.

To better understand the way the Internet is used by rural people, several comparisons were made. For example, Figure H compares experienced Internet users (one or more years in using the Internet) with inexperienced Internet users (less than one year). There were 14 inexperienced users and 37 experienced users making comparisons a little difficult in terms of those raw number differences, but the patterns stayed somewhat the same even given the fact that inexperienced learners did not report using the Internet for several activities. A Spearman correlation coefficient provides an indication of whether or not statistical differences exist between two groupings of respondents. This value is shown at the bottom of each figure where a comparison is made. Much care must be taken in using or interpreting these values, but they are shown here as an aid in interpreting the information. For instance, comparing inexperienced and experienced subjects by testing the null hypothesis of no relationship between the way the two groups use the Internet resulted in it being rejected at the .01 level. Although a test of the alternative hypothesis was not attempted, the implication of group similarities is implied.

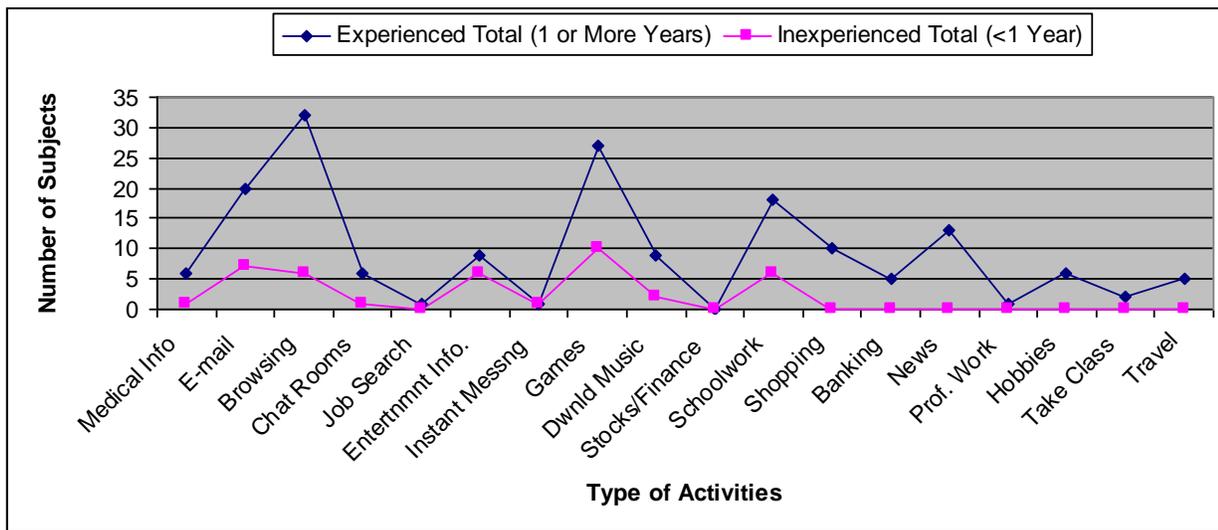
Looking at the lack of involvement by inexperienced users with some activities, perhaps more experience is required before rural users, at least adult users, feel comfortable with or a need to do job searching, become involved in financial activities, shop, bank, look at news sites, find hobby information, take a class, or obtain travel information. Obviously, future research can help clarify some of the results.

Other comparisons included adults with youth, males with females, and whites with minorities. For example, there were 21 adults and 30 youth, so the visual comparisons can be seen a little more clearly. Figure I shows that adults and youth differ quite a bit in playing games and doing homework as might be expected. Adults tended to do more browsing, look to the Internet for news, and pursue hobbies as also might be expected. The Spearman coefficient suggested that the null hypothesis of no relationship between the way adults and youth use the Internet cannot be rejected. Future research to clarify and confirm these results may be useful in delineating different programs aimed at helping the two groups better use the Internet.

As Figure J shows, there were very few differences between the 29 females and 22 males. This is confirmed by the Spearman correlation testing of the null hypothesis of no relationship between the two groups in terms of Internet uses. That hypothesis was also rejected at the .01 level. Males perhaps used e-mail slightly less but tended to use the Internet for more game playing.

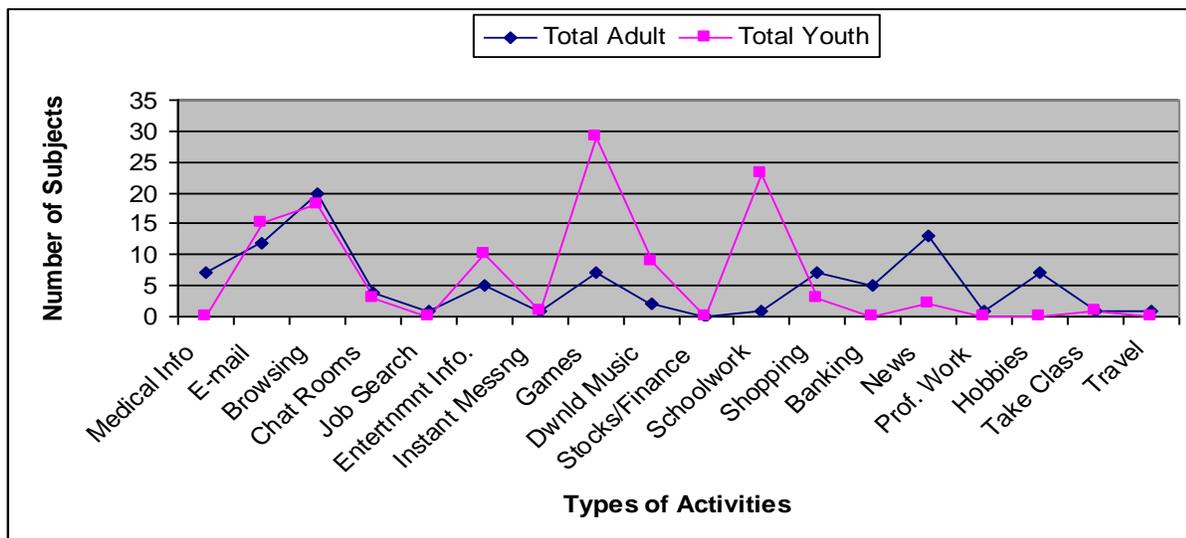
Figure K compares white and minority responses. As there were only 13 minority subjects compared with 38 white subjects, these results must be interpreted very carefully. The use patterns are somewhat similar for the two groups and this is confirmed as the Spearman

Figure H. *Use of the Internet by Rural Subjects: Experienced and Inexperienced User Comparisons.*



Spearman rank correlation coefficient is .692; significance is less than .01.

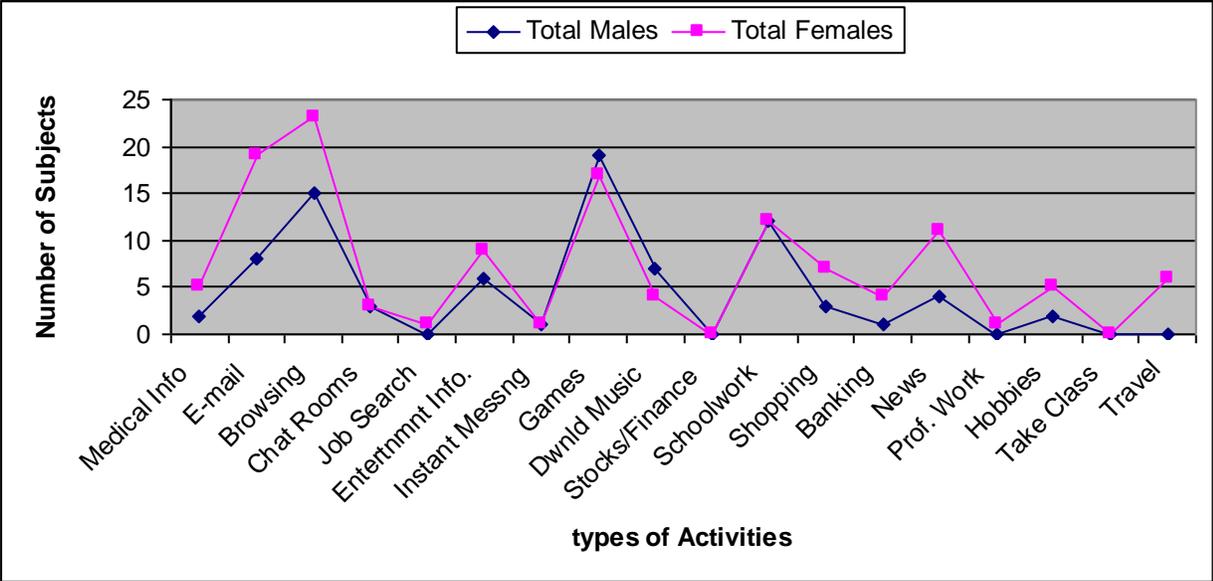
Figure I. *Use of the Internet by Rural Subjects: Adult and Youth Comparisons.*



Spearman rank correlation coefficient is .408; significance is greater than .05.

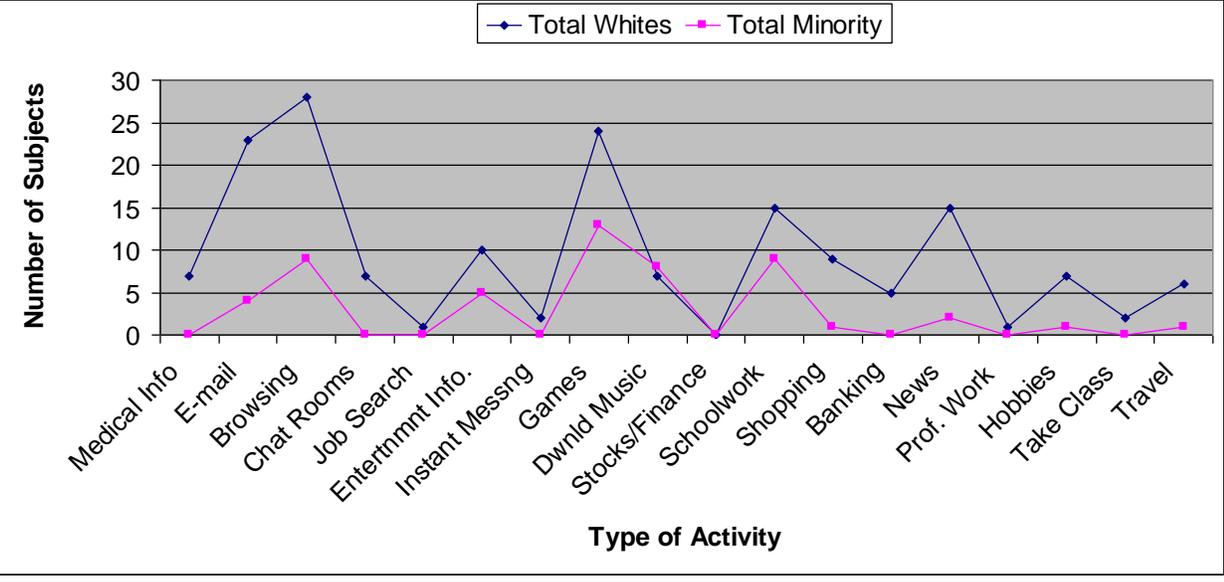
coefficient test of the null hypothesis of no relationship also was rejected at the .01 level. However, the fact that minorities reported no usage for several categories suggests that considerably more research with larger numbers of minorities, both adults and youth, is needed before a better understanding of rural patterns is obtainable. Racial theorists Omi and Winant (1994) suggest that race is a matter of both individuality (a micro-level) and collectivity (a macro level). Lebo and Corante (2003) describe

Figure J. Use of the Internet by Rural Subjects: Male and Female Comparisons.



Spearman rank correlation coefficient is .846; significance is less than .01.

Figure K. Use of the Internet by Rural Subjects: White and Minority Comparisons.



Spearman rank correlation coefficient is .852; significance is less than .01.

how Latinos use the Internet less than non-Latinos and that a gap also exists between Latino men and women. Therefore, a better understanding of the links between these two levels of social relationship will be especially important in rural areas where definitions of community may be either confounded by ghettoized relationships or possible in subjugation based on traditional prejudices or expectations.

The broader picture that can be drawn about the Internet usage from this current research effort is that rural users are involved in a multitude of activities. In many ways, they show considerable sophistication as they use the Internet to meet personal needs. Their usage patterns are similar in some ways to those found in previous UCLA studies. However, perhaps because only small samples from two states quite distant from each other were studied, there also are some real differences as noted earlier. Only future study can facilitate a better understanding of what it means to bring broadband Internet opportunities to rural areas via satellite where few other broadband options exist.

### **Search Engine Experiences**

When asked about their Internet uses, both youth and adults frequently talked about the search engines they used or preferred. The past public stock sales of Ask Jeeves, Excite, Lycos, Yahoo, and others, and the upcoming public stock sale of Google, suggest that search engines play an important role in how people use the Internet. The rural subjects in this study seemed to have their favorites and each search engine offers a unique way of finding and displaying “hits” that may appeal to certain people.

For example, Google was the most popular search engine among both adult and youth subjects. A 15 year old female in Michigan and an experienced user noted why she preferred Google:

*Depending on the subject, if it is more specific I usually go to Google as it doesn't give me lots of stuff that is more general. If I am looking at a more general topic I usually go to Ask Jeeves.*

A 13 year old black female from Michigan, also an experienced user, had a similar comment:

*I will go to Google because I normally can find most of the stuff there or Ask Jeeves.*

A 47 year old experienced user in Idaho, a female, simply reversed the order she would use the two:

*Well, usually I would go to Ask Jeeves or Google.*

An experienced 40-59 female from Idaho liked Google and Ask:

*Google is my favorite I think. I think that has the most available.*

Interviewer: *Anything else?*

*Then I do Ask.*

Of course not everyone felt the same way. An experienced 17 year old female in Idaho simply said,

*I don't like to use Google.*

An 11 year old Hispanic male in Idaho, a beginning user, introduced this researcher to a new search engine:

Interviewer: *If you want to search for something, how would you do that?*

*Mamma.*

Interviewer: *How do you do that?*

*You just put mamma.com*

Interviewer: *I haven't heard of that one. Is that a good one?*

*Yeah.*

Another 11 year old Hispanic male in Idaho, an experienced user, liked a different set of search engines:

*Yahoo.*

Interviewer: *Is that the only one you use?*

*I use Yahoo! and Google.*

Still another set of preferences was expressed by a 40-59 year old female in Idaho, an experienced user:

*I use Google quite a bit. I have used Dogpile for some things.*

These selected quotes seem to show that different search engines serve different purposes. More information on Web site choices is contained in the next section.

### **Web Sites**

Another way of understanding how rural people use the Internet is to look at the types of resources or Web sites they frequent. During the interview respondents were asked to identify or describe the type of resources or Web pages they go to when they are online. If anyone had trouble coming up with or remembering sites, probing questions or examples were offered related to various topics. Whenever possible, an attempt was made to obtain the actual URL. As might be expected, even though the interviewer and the respondent often seemed to exhaust the possibilities when this questions was initially asked, other Web sites would come up when respondents answered subsequent questions.

This researcher did not know what to expect, but it was amazing to discover both the breadth and the variety of Web sites visited. Appendix III details this information and includes information on how many people mentioned each site in terms of adult or youth status, gender, race, experience level. Almost 90 different sites were mentioned as a place they visit on a regular basis. Some sites may only have been mentioned by one person and it was not determined how much time was actually spent at any of the sites by the subjects, but several sites were frequented by multiple individuals. Some people also mentioned several different sites, whereas a few people only mentioned two or three sites.

Table 3 depicts the most frequently mentioned sites. Each site in the table was mentioned by a minimum of three people. Interestingly, almost all the sites were dot coms and there was only one site from outside the United States. In the table the race descriptors stand for American Indian, black, Hispanic, and white. The respondents also were either experienced, having been involved with the

Internet one or more years, or inexperienced, meaning involvement of less than a year. Gender and age status information also is detailed.

Table 3. *Web Sites Mentioned Most Frequently by Rural Subjects.*

Web Site	Description	Demographic Characteristics									
		Age Status		Gender		Race				Experience	
		Youth	Adult	Male	Female	Wh	Hi	Bl	NA	Exp.	Inexp.
ask	Search engine	07	02	03	06	07	01	01	00	08	01
bonus	Homework help	03	00	01	02	02	01	00	00	03	00
cartoon-network	Cartoons	06	00	04	02	02	04	00	00	04	02
cheating-dome	Cheats and hints archive	03	00	03	00	01	02	00	00	02	01
coffee-breakarcade	Online games	03	01	04	01	01	03	00	00	03	01
google	Search engine	12	07	05	14	15	02	01	01	18	01
hotmail	E-mail provider	08	00	02	06	05	03	00	00	07	01
mtv	MTV network support	00	03	03	00	01	02	00	00	02	01
neopets	Virtual pets	05	00	02	03	02	03	00	00	04	01
search.msn	Internet Explorer search engine	03	04	03	04	04	02	01	00	06	01
shockwave	Online games	05	00	04	01	01	04	00	00	04	01
snoopdog	Search directory	03	00	03	00	00	03	00	00	03	01
webquest	Investigative projects	04	00	01	03	03	01	00	00	04	00
www21.-pogo	Family game site	04	01	04	01	05	00	00	00	04	01
yahoo	Search engine, general information, e-mail provider	10	05	06	09	11	02	01	01	15	00

There were some interesting differences, even though the overall numbers are small enough that any conclusions must be considered carefully. For example, as might be expected many youth selected sites dealing with cartoons, games, and other fun activities, with males and Hispanics often predominating here. Some adults also selected such sites, but it was rarer. Adults tended to select a variety of Web sites, but frequently only one or two people mentioned a site so they did not appear nearly as often in this table. Information pertaining to search engines was described in the previous section.

An examination of Appendix III reveals considerable information that could be used by teachers, instructional designers, and Center administrators. For example, there were several sites that had some type of connection to education and learning. Teachers might start with these Web pages for certain learning activities or assignments. A later section in this report provides more detail on how people use the Internet for learning and knowledge development.

Several sites were related in some way to hobbies or personal interests such as automobiles, cooking, gardening, genealogy, guns, and travel. Adult education teachers and even teachers in youth programs could plan programs that use such Internet sites to teach people how to use such information, how to find other related sites, and even how to find others online who might be interested in the same topic. Administrators could develop support groups related to such topics or provide referrals to organizations and agencies in the community that might have similar information. Even instructional or Web designers could build new support materials or Web sites that build off of such interests.

The possibilities seem almost limitless once you start brainstorming from knowing where people like to go when they are on the Web. Obviously there are related privacy issues to be solved and many people may hesitate to share such information if they feel that “big brother” may be watching. However, it may be valuable for teachers, administrators, and others to work together and find meaningful ways of working with users to maximize their involvement with various Web sites.

It needs to be noted that there were several interesting sounding Web sites that could not be found given the imprecise information this researcher obtained from respondents. They included such site descriptions as box tv, cemeteries, chickens, eastbay, hot Kelley, lounge, Oregon Trail, station 5, start your engines, stamps online, and University of Michigan homework help. Unfortunately, the nature of a semi-structured interview process with limited interviewing time prevented appropriate follow up measures.

Thus, the findings presented in this section provide a snapshot in time on what is happening in the Idaho and Michigan locations in terms of Web sites choices and interests. Future research that builds on these findings or that obtains more definitive information can provide valuable knowledge for a variety of individuals wishing to support people in rural and remote areas.

## **Evaluating Web Sites**

Respondents also were asked how they evaluate those Web pages they visit. People who use the Web generally are bombarded with way more information than they can possibly digest. Thus, it was anticipated that if people could describe at least in informal ways how they make decisions about Web sites, whether to read them or not, such knowledge might be useful in planning future programs aimed at helping people become better consumers of the vast amounts of information on the Internet.

Table 4 provides a summary of some of the most common comments, approaches, or observations from the words of those rural respondents providing some insight in this area. In many respects the observations seem like common sense to an experienced Internet user, but they do represent the fact that rural users think about what makes a good or a bad page, and perhaps those that they quickly ignore or that they come back to time and again.

Although the respondents may not have stated some of the more sophisticated criteria often mentioned by professional Web designers, such as authenticity, integrity, reliability, format, and design appropriateness, they can clearly describe what is important to them. The interviewees in this study were not too far from the common sense suggestions of a professional librarian (Ryan, 2002), who suggests we use five important questions when assessing the value of a Web page:

Table 4. *Informal Criteria for Evaluating Web Sites.*

<b>Positive Criteria</b>	<b>Negative Criteria</b>
Colorful - has color, not just black and white	Is not up-to-date
Easy to navigate and find what is needed	Confusing
Is exciting and catches your attention quickly	Has too many words
Is interesting and piques your curiosity	Has too many ads/pop-up ads
Has pictures/graphics/photographs	Has too many choices
Appeals to youth	Too much information – too long
Relevancy – it has to be relevant	Too much clutter
Initial descriptive statements are clear	Doesn't cite any verifying statistics or references

- Who made it?
- When was it last updated?
- Is it clear what it's about?
- Are there lots of ads?
- Is it easy to find the information you want?

Listen to some of the common sense words of these rural users as they give their observations. It is like seeing the results from a focus group.

From a 14 year old female in Michigan who has considerable experience with the Internet:

*If it is something that is relevant to the topic I am working on, informative, not just a bunch of pictures and nothing else, . . . because in Google sometimes you look stuff up and is totally what you didn't want so it has to be something that is relevant.*

A 12 year old female in Michigan and an experienced user said,

*If its confusing or has a lot of words that I don't understand I don't ever want to go on it. Sometimes if it doesn't have any pictures that would be kind of a thing I really wouldn't want to look at, kind of boring to look at. Uum, sometimes the colors, if it is just like black and white that is not too fun to go to.*

A 15 year old male in Idaho and an experienced person, suggested this:

*Well, you know, like check the dates and stuff. I'll look at the pictures and see if that's what I'm looking for, just examine it.*

From Idaho a fairly sophisticated male user at 59 said the following:

*I like to have them cite their statistics. If it's a poll I like to know the error variances and a lot of them don't tell you that.*

Another Idaho male, a 14 year old experienced male, said excitement is the main thing:

*Uum, it has to be exciting or has to be some kind of. . . game and excitement.*

A 19 year old male and an experienced Internet user in Idaho said,

*Well, the thing I don't like about a lot of Web pages that it's just a lot of clutter on there and mostly advertisements and pop-up windows. I wouldn't mind it so much if they give you a decision but when you go on the page and the window pops up and you have to actually download something sometimes. And just all the clutter they have on there, a bunch of stuff they don't need, it's just kind of a thorn for the page and it doesn't look nice.*

Another experienced person from Idaho, a 40-59 year old female, talks about ease of use:

*. . . sometimes just trying to navigate their Web site, how convoluted is it or how easy is it to use. Some of them are very easy to use and there are others that you can't really find the information you're looking for or it's too much, too many words or not enough pictures or buttons or whatever.*

Finally, a beginning Hispanic user from Idaho, a 10 year old male, says it perhaps the most straight forward:

*Kind of cool!*

It is anticipated that this knowledge about the wide ranging interests of rural subjects, at least in parts of Idaho and Michigan, will be useful in planning future programs aimed at helping users of the Internet become more skilled, discerning, and critically reflective as they seek and use knowledge. For example, the considerable interest in games and fun activities can be seen as a means for helping new users gain fascination with the Internet, gain improved eye-hand coordination, and increase their familiarity with a keyboard and computer terminology. As noted earlier, a range of Web pages that seem popular also could help teachers plan learning activities with such sites as entry points for finding information. Knowing about which search engines are the most used could help teachers interested in designing a course on how to improve information acquisition, evaluation, utilization, and storage.

In essence, having broadband access via satellite technology, at least in the three sites involved in this current research effort, opened the doors to enjoyment, new information, and needed knowledge in ways that most likely would not have been possible without such access. Future research should build from the information provided here to develop an even broader picture of how rural residents are impacted by the Internet.

## Impact on Learning

One important research objective was to determine the impact on learning for rural youth and adults who have broadband access to the Internet. In that regard, several questions were asked during the interviews. Youth were asked questions about how the Internet had been used for learning purposes, such as taking on-line courses, talking with others about homework or learning activities, and even working with others via the Internet on learning activities. They also were asked to speculate on whether or not their Internet experiences had helped them with school activities, had changed their learning approaches, had added new skills, had changed them as a learner or as an individual, and whether they preferred working alone or with someone else on their learning activities. Adults were asked similar questions, excluding mention of school or homework.

As might be anticipated, respondents offered a wide variety of opinions and relayed numerous personal experiences. However, there were some commonalities or similarities across the responses. Table 5 presents some of these results in seven broad categories.

Table 5. *How Internet Resources and Experiences Impact on Learning for Rural Youth and Adults.*

Category Description	Frequency of Mention	
	Youth	Adults
Efficient/Easier Access to Information	14	07
Enhances Computer and Internet Skills	13	05
Enhances Curiosity, Enjoyment, Interest	03	04
Enhances Typing Skills	09	03
Homework Resource or Tool	11	00
Increasing Overall Knowledge and Skill	10	08
Teachers Incorporating Internet as a Resource	04	00

The notion of efficiency and easy access to information was expressed frequently. Following is a sampling of these comments.

A 14 year old female from Michigan and an experienced Internet user noted,

*Well, like for research it is convenient. You know, just plug in something you are interested in and you can do research on it and get a lot of information – almost everything you would ever want to know about something.*

A 29 year old American Indian male from Michigan with considerable experience added this:

*. . . it is now easier to access stuff and it wasn't that easy before.*

Another American Indian in Michigan who was a 12 year old female and only a beginning user, said very simply,

*It was more helpful than looking in books because its [sic] quicker.*

A 17 year old female from Idaho and an experienced user had a pragmatic notion:

*Well, I've learned things more because of it going faster because I can get things more quicker [sic], and I don't have to sit for an hour . . . and I could do a lot more stuff and do research.*

Another pragmatic comment was heard from a 15 year in Idaho and an experienced user:

*I probably learned a lot more from the Internet than I have in school because it's easier to learn on the Internet because it's harder in school. They just give you the work and tell you to do it. And on the Internet you can choose what you want to do so that helps a lot.*

A beginning user who is a 61 year old female in Idaho was quite definitive:

*Oh definitely, it's made it a lot easier to get the information and it gives me a lot more information than what I would be able to get any other way.*

Of course, not everyone thought that experiences with the Internet had changed them as a learner. Here are the thoughts of a 14 year old female from Michigan, also a beginning user:

*Interviewer: Learning these new Internet skills, have they changed you as a learner? I doubt it, but its handy.*

There was considerable appreciation for how computer and Internet skills had been enhanced over time.

A 15 year old female from Michigan who had considerable experience with the Internet talked with appreciation about her enhanced searching skills:

*I know what sites to go to for research depending on the subject that I am looking at. I usually can tell if I should go through Ask Jeeves or Google.*

A beginning user from Michigan who is a 47 old male appreciated his increasing computer and Internet abilities:

*Well, . . . now I have the ability to be able to log in without having any problems logging in. For a long time, when I would hit the start button, then it would pull up and I would forget, what do I do now. So now. . . everything's a lot better so it's like a step here and it's a lot easier now. I'm more familiar with it now.*

Another beginner from Idaho who is an 11 year old Hispanic male was appreciative of what he now knew:

*I know what to do when it crashed!*

A more experienced Hispanic male, a 14 year old in Idaho, was a bit more sophisticated as he described his growth in knowledge:

*I can take apart a computer. I know about Microsoft programs like Excel, Word, PowerPoint, FrontPage and I know how to like change a computer.*

A 48 year old female in Idaho who was an experienced user, answered quite simply and with considerable expression when asked about skills she now had after using the Center resources:

*Just being able to work with the computer.*

A general increase in overall knowledge and skill from the experiences of using the Internet was expressed in various ways:

A female from Michigan who at 12 is an experienced user, described how the convenience of the Internet had enhanced her knowledge base:

*I would say I have more knowledge, because anything I want to find I don't have to look up what book it will be, you just go on the Internet and type that in and it comes up.*

A 47 year old female living in Idaho who as an experienced user appreciates how it fits in with her busy lifestyle:

*Well, I have learned quite a few things on the Internet and these are things I wouldn't have probably learned otherwise because our lifestyles are pretty busy and we live in a very small town. The library is pretty limited with what their information is. I just wouldn't have had access.*

A 17 year old female in Idaho who is an experienced user said,

*I've learned that you can look up anything on the Internet with little effort because everything you want. You can find anything online.*

A 19 year male in Idaho, who also is an experienced user, liked what it provided for himself:

*I've really picked up on really good sites to go to for education and stuff like that.*

A 40 to 59 year old woman in Idaho with considerable Internet experience, said it very simply:

*Oh my gosh, I learned a lot off the Internet.*

This notion of enhanced knowledge and skill also was expressed in terms of how a person's learning abilities were affected.

A 47 year old male in Michigan and an enthusiastic beginner described how he was learning from others:

*I'm learning by other people's experiences, how they changed their lives, and how the changes they made helped them live their lives . . . better.*

A 19 year old male from Michigan and an experienced user talked about how important his involvement with computers had been for his learning efforts:

*A lot of my learning is really based on the computers because that is where I learned most of what I know.*

A 47 year old female in Idaho, an experienced user, talked about the importance of the Internet to her as a learner:

*Well, I have learned quite a few things on the Internet and these are things I wouldn't have probably learned otherwise because our lifestyles are pretty busy and we live in a small town.*

Interviewer: *So it has broadened you as a learner?*

*I think so, yes.*

Notions about curiosity, enjoyment, and general interest or excitement in working with the Internet came up several times.

A Michigan female who is 14 and an experienced user, was somewhat philosophical in describing how it had impacted her:

*Well before I wasn't very interested in going through all the work of looking up something – I will figure it out later kind of an attitude; but now if I am even curious about something, it is there. I always use it. I have a lot of things that I have questions about or I am curious about and I am always using it to figure it out.*

A 47 year old female from Idaho who was an experienced user said,

*. . . it makes it a lot more interesting and exciting than just trying to search through 100 books at the library.*

Another Idaho female, a 70 year old beginner, said something similar even more emphatically while not understanding why her contemporaries weren't as interested:

*I'm really excited about what I can do and I'm really excited about what I'm going to learn to do, the future of it, and I try to get my other friends approximately my age and they won't and I can't understand because I tell them, if I can do it, so can you.*

Another older female in Idaho, a 60 plus experienced user, talked about how she now approaches the use of the Internet:

*So I guess I've become more exploratory, my learning before that was more specifically directed to job or personal leisure or something like that. Just kind of discovering something for the heck of it is kind of fun.*

Finally, a 13 year old female living in Idaho who is Hispanic and an experienced user, said it this way:

*I learned so much on the computer. I have learned new things. Its fun to learn new things.*

Several youth talked about how the Internet has helped them with their homework requirements and even how teachers are now thinking about the Internet in conjunction with study requirements.

A 12 year old female from Michigan, an experienced user, talked about how she uses the Internet:

*Well, I use it for schoolwork a lot. On projects it is the main resource.*

Another experienced Internet user in Michigan, an 11 year old female, was even more specific on how she practices her homework assignments via the Internet:

*I go online and there's these things you can say, homework, stuff like that. So I go to homework and it will talk to me first before I do it because you read the lines when you're online. So I read the lines and I can also click okay and the first three pages it will do for you then you have to do the rest yourself.*

A 13 year old black female and experienced user, talked enthusiastically about how the Internet has helped her with her homework:

*Yes, because in AltaVista you can find anything there, about any school project you need about and we do countries. Like we learn in 8<sup>th</sup> grade, now we're going to learn about the United States, but in 6<sup>th</sup> and 7<sup>th</sup> grade in the Middle Schools, we do other countries. This year we did Asia and the Pacific Islands and South America. Last year we did the Middle East and Europe and it was pretty fun because when you go to AltaVista you can find a picture of the country leader, president, or prime minister, and you can find stuff about that country.*

A 15 year old male from Idaho who is also an experienced user, said,

*I look up information for reports and stuff or an art project.*

An 11 year old male in Idaho, an experienced user, described how his teachers thinks about the Internet:

*Well, usually a teacher say go to the library and look it up, but sometimes they tell you to get on the Internet and look it up if you can't find it or they just want you to.*

A 14 year old Hispanic male in Idaho, who is an experienced user, talked about how one of his teachers recognized his growing abilities emanating from the computer lab experiences:

*Oh yeah, like when one of my teachers said I was like I don't know nothing about computers and now I know a lot more. Teacher said my computer skills are like higher so he gave me a better grade.*

A similar theme was expressed by a 17 year old female in Michigan, an experienced user:

*They know we have computer access. They expect us to use that. They want us to use everything we can.*

Finally, the theme of a need for typing skills or how working in the computer labs has enhanced personal typing or keyboarding skills came up several times. With computer and Internet accessibility on the increase across the country, Hopkins (1998) notes, “most teachers and experts in education say the teaching of keyboarding is a given.” Obviously, more success as a computer user generally is possible with enhanced keyboarding skills, so it was rewarding to see such comments appearing on a fairly common basis.

A 13 year female in Michigan and a beginning user, put it this way:

*Well, I don't think I ever had anything that didn't help me here. But what helped me is since I've been coming here I've learned how to type more faster [sic].*

Another Michigan youth, a 14 year old and an experienced user, said,

*It gave me new skills. I learned how to type. I got 62 words.*

A 47 year old male in Michigan, and a beginner, said,

*Well, my typing skills has [sic] improved because I'm up here, like I said, every day when its open so I'm improving in a lot of ways, in a lot more ways than I have before.*

An 11 year old female in Idaho, and an experienced user, said simply,

*I can type a lot faster.*

Another 11 year in Idaho, an Hispanic male and experienced with the Internet, said,

*I have more fast [sic] typing skills and I know how to use the Internet better than I did.*

A 48 year old female in Idaho, an experienced user, added to this theme:

*I probably type a little better than I . . . (a pause) just because I'm using it.*

It was anticipated that interest or involvement in online courses would exist among the respondents because of the growth of distance education throughout the world. However, very little involvement was found. A couple of adults had used the Internet to access some course material at Boise State University, e-mail a teacher about an assignment, or send in material electronically for an assignment. Only two people had taken a course of some sort via the Internet.

The 29 year old American Indian male in Michigan with considerable Internet experience said,

*. . . the A+ certification was done online through Michigan.*

A 40-59 year old female, an experienced user who also teaches an occasional course for the Marsing Center took a couple of courses to aid her teaching abilities:

*The Word course online I did take. It was free and that's how I learned a lot before I started teaching it because I really didn't use Word. . . . I took another Excel course so that maybe I could teach another level here.*

Respondents were asked if any of their time on the Internet involved working with others on their learning efforts or other activities or if they preferred working by themselves. Perhaps because of the solitary nature of sitting at a keyboard in front of a computer screen, a number of people said they liked to work by themselves.

For example, an experienced user in Michigan, a confident 14 year old male, said,

*Work by myself. I'm an independent man. Wouldn't have it any other way.*

A 13 year old Hispanic female in Idaho, a beginning computer user, put it this way:

*I only want to do it by myself, but if there are not enough computers and you have to share it here, I will share it with my sister. She gets to go first, but I don't want to fight over it.*

An experienced 15 year old male in Idaho had a clear preference:

*By myself. I prefer working by myself.*

An experienced 11 year old female in Idaho has a similar style:

*I mostly like working by myself.*

However, several others enjoyed working with someone else.

A 47 year old male in Michigan, a beginner, like communicating with another person:

*Oh, no, I mean, like I learn new things every day. The person I'm talking with, I might know something she don't know and she might know something that I don't know. So we share information back and forth, you know.*

A 61 year old female from Idaho, also a beginner, said,

*At this point, I like doing it with someone else until I learn how to do it a little better.*

An experienced 19 year old female in Idaho enjoyed working with another person:

*Oh, I like working with somebody else. It makes it more interesting.*

There also were several who simply said it didn't matter whether they worked by themselves or with others.

There is no doubt that the Internet has had an impact on the way rural people learn, use the Internet to access learning resources, and even work with others on learning activities. This research has only

begun the process of understanding this impact. Future research can delve more intensely into the topic so the ways school teachers, instructional designers, trainers of adults, and on-line course developers can use the Internet more effectively can be enhanced.

### **Barriers and Successes**

The respondents were asked to describe the kinds of things that had both helped them and limited them in their work with Internet. If they had difficulty coming up such factors, as many did, the researcher probed with questions about barriers, limitations, difficulties, successes, and even the nature of any help they might have received at a computer lab.

A few people said that they had not experienced any barriers in their use of the Internet at a Center.

When asked about problems or barriers faced, a 73 year old male who was a beginner, was emphatic in his response:

*Nothing, absolutely nothing!*

Similarly, a 13 year old female, and a 15 year old male, both beginning Internet users in Michigan, said “no” when asked the same question. It wasn’t only the inexperienced who answered this way, an experienced male aged 14 from Michigan and an experienced Hispanic male aged 15 from Idaho both said they had not experienced any barriers.

However, several people did talk about computers or even the Internet being too slow at times. It may be that once you experience the top speed possible, and see what that can mean in such activities as sending e-mail, finding sites, playing games, and seeing Web pages refresh, then another time when for any reason it is slower levels of frustration may rise.

A 29 year old American Indian adult male in Michigan and an experienced Internet user who also does some volunteering in the computer lab, described it this way:

*The only thing actually is on the technical side of it. It actually hasn’t been a real hindrance, it has just sort of an annoyance. It is due to the fact of the connection rate of the dish. . . I noticed it is more, maybe it is because the dish is on the ground rather than the roof (at the time of the interview the satellite dish had not yet been moved to a raised platform), but the download speeds are almost never to what they should be. We have been averaging sometimes less than 56K. You can ask Tyler about it. Sometimes it interferes with the whole network here, the LAN. And people get frustrated and things like that.*

A 17 year old female in Idaho, an experienced user, who also does some volunteering in that Center, made a similar claim:

*It’s a pain to download everything it seems like, download pictures, especially the rate. You have to click on, go to it, you know. It is way too messy.*

An experienced 60 plus female in Idaho also mentioned slow computers:

Interviewer: *In your working at the Marsing Center, have there been any thing you have run into as problems or barriers?  
Just the slower computers that they have that need upgrading.*

Not all agree, of course. A 47 year female in Idaho who was experienced in using the Internet said this:

*The Internet here is really nice. Its fast, it seems real accurate, you can get where you want to be.*

Bad weather also was noted as a problem at times. The researcher had conversations about this with people at the Kettunen Center on a site visit when complaints that freezing rain and snow appeared to impact on Internet reception. This was amplified by one of the respondents in another Michigan site.

A 47 year old male from Michigan who was still a beginner, but one who had been a frequent visitor to the computer lab for months, make a comment about weather:

*Well, the only trouble we have is I've got on a few times and I'd be talking to somebody and the computer would crash and with a satellite, I hear, and if the weather's real bad, real cloudy, we have come up here and not been able to get on because the signals aren't going out and I can't understand why they haven't mounted this thing on top of the building. . .*

Having experienced severe fog in Idaho during a site visit and seeing how this limited reception, this researcher could understand the frustration of an experienced 15 year old male in Idaho:

*Well, maybe have some sort of way of keeping the weather from interfering with the searching.*

As mentioned earlier when describing how Web sites are evaluated, another limitation had to do with the nature of ads appearing on Web sites, especially pop-up ads. As a frustration it appeared across gender, age, and race as a 19 year old experienced male in Michigan, another experienced male in Michigan, a 12 year old, an experienced 13 year female in Michigan, an experienced 12 year old Hispanic male in Idaho, and an experienced 40-59 year old female in Idaho all complained about pop-ups. Perhaps in the near future software should be installed that is aimed at reducing the number of pop-up ads.

Administrators in Idaho and in Michigan made decisions to block certain Web sites from access (pornography, inflammatory, open access to chat rooms, etc.) by users. Several people of all ages complained about this to the researcher, but most seemed to both understand and be resigned to this action as a necessary step for a computer lab.

Information overload or a lack of knowledge was mentioned as a limitation by a few people.

A 17 year old female in Michigan with considerable experience noted,

*Well, I guess sometimes there is so much to choose from – I guess it is kind of overwhelming. That is kind of one of the barriers in like searching for information. There is just so much to look into that it is almost like you don't know what to choose.*

A 40-59 year old female in Idaho, an experienced user, put it this way regarding too much information:

*Because I notice it on Google. If you put in what you're looking for it will give you maybe 50 sources and some of them have a good description and you might be able to pick the first one or second one but a lot of times you have to go through maybe ten of them before you find what you're looking for.*

A 30-39 year old experienced female and a 48 year old experienced female, both from Idaho, talked about their initial lack of knowledge as barriers.

Administrators and teachers in Idaho and Michigan were credited with helping bring about success for several respondents.

A 47 year old male in Michigan who is still a beginner, commented,

*Well, I mean everything has been going good and Tyler is great in there. He has worked with everybody comes in, with the kids. I mean, if anything, if we need help or anything he is right over there in no time.*

A 12 year old American Indian female in Michigan who is also beginner said something similar:

*Tyler has been really helpful since he has been here. And he helps a lot of people.*

A 48 year old female in Idaho, an experienced Internet user, had praise for a teacher there:

Interviewer: *Anything there that helped you or made you be successful?*  
*Oh, Pat, definitely! Yes.*

Another female in Idaho in the 30-39 age range and an experienced user, had praise for a teacher, an administrator, and even young people who use the computer lab:

*Well, like Darlyne and the kids showed me how to use the Internet. . . If I need help I go get Eva (a teenage volunteer who also teaches some), Darlyne, or whatever kid because they'll help you.*

Finally, a 42 year old female in Idaho who as a beginner had appreciation for the help the Center Director had provided:

Interviewer: *Have you received the help you've needed here?*  
*Oh, yes. Darlyne, she's really had a lot of information and she's a whiz about getting down to finding things out. She has been very helpful.*

Both in Michigan at the Kinross Center and in Idaho, access to certain chat room privileges had been removed. Disappointment about this action was mentioned by several respondents. However, many talked about the value of communicating with others over the Internet via e-mail and instant messaging options.

A 30-39 year old female in Idaho and an experienced user found some success in working on her college course this way:

*Interviewer: Does any of your class work involve working with someone else over the Internet like in a study group or a group of students from Boise State?*

*Yes, sometimes you have like three or four of us that could e-mail back and forth, that's if we were all working on the same assignment we can.*

A 12 year old female from Michigan, an experienced user, said,

*Because of instant messenger I can talk with my friends or talk to people from my school.*

All youth were asked on a scale from one to five, to decide if they had enjoyed working with the Internet activities at their particular computer lab. Many gave a very enthusiastic answer of five and elaborated on their decision.

One of the youngest interviewees, a 9 year old male in Michigan and a beginning user, said enthusiastically,

*Its fun. If it was not much fun no one would come there and a whole bunch of people are there.*

A 17 year old female in Idaho with considerable experience had a pragmatic answer for why she noted a five:

*Well the Internet is a lot faster here. It kind of steers other people here.*

An 11 year old Hispanic male, and an experienced user in Idaho, said this about why he had said five:

*Because I like doing everything they do on the computer. I wish I was the head teacher.*

When the young people suggested a lower number, it often was because of some computer problem they had experienced. Here is a typical response:

A 13 year old experienced Hispanic male in Idaho said he would rate it a four:

*Because I don't like when it rains and when it crashes, like when the thing goes error on the send-don't send or it crashes and takes you all the way to the beginning.*

Youth also were asked on a scale of one to five if they would like to work with the Internet more in the future. Several answered five and supported their decision.

A 15 year old male from Michigan, an experienced user, noted this:

*I'm here whenever my parents let me. This is the place I want to be.*

A 13 year old black female, also from Michigan, and an experienced user, said,

*I would like to learn more stuff . . . because in the future there's going to be more stuff than just what we learned in the past, so I would like to learn more.*

Those who reported lower numbers typically had pragmatic reasons.

A 17 year old female from Idaho with lots of experience noted,

*I use it a lot now already, probably more than I should be on there.*

Interviewer: *Does that create a hardship at home or at school?*

*Sometimes, yes. Time goes fast when you are on the computer.*

A 15 year old male from Idaho and an experienced user said,

*About a four, because I'm probably going to get a job and be involved with sports and I won't have much time to be involved with the Internet most of the time.*

There were a number of other indicators that people appreciated the successful and positive experiences they had received from working with the Internet.

A 17 year old experienced female in Michigan summed it all up this way:

*Well, it has been a positive experience and its one that gives you lots of options. I think it is neat to be able to explore it. There is so much to it. So I think it is a good experience.*

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

This current research effort has generally supported previous research about Internet users. In essence, rural people in the United States make good use of computers that can access broadband Internet. With experience, such use often becomes more sophisticated, essential, and conducive to making a real difference in the lives of people and, subsequently, in their communities.

We know that people living in rural and remote areas will become avid users of the Internet if opportunities to do so exist. This research report, other ADEC research reports, and national efforts by the Pew Research Center and UCLA's Center for Communication Policy cited earlier confirm this. Having access to broadband Internet, such as the satellite transmissions that are foundational to the rural users studied in this project, facilitates use in rural areas.

## Outcomes From Using the Internet

Essentiality was mentioned early in this report as a probable outcome from understanding and embracing the power of the Internet. After interviewing 51 people, observing what was going on in parts of Idaho and Michigan, reading and rereading those interview transcripts, and finding ways to make a whole from the various parts, a conclusion can be reached. This researcher believes, at least in the sites visited, that the Internet has become an essential means for enhancing the lives of many of these people.

In many respects, the power of broadband Internet has helped 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.*”

This embracing of the whole world in a computer through Internet access seems to even be extended as these rural users gain experience and discover new applications. Think of those earlier quotes from several people who exclaimed almost with glee how they had discovered all the additional things they could do on the Internet and how that was helping them in various ways. This, in turn, can lead to self-discovery and self-improvement, which ultimately benefits community and even society.

This researcher was amazed at how quickly many of the interviewees seemed to become quite knowledgeable about the Internet, computers, and various associated applications. Often a fairly new user was employing the language, concepts, and approaches associated with Internet familiarity one might expect more with a very sophisticated and experienced user. Web site names and URLs, common Internet jargon, complaints about slow computers, discerning comments about which search engines did what, and even Web page design talk emanated from quite young and/or new Internet users.

Many rural users in this study also talked about the joy, fun, satisfaction, and even essentiality they experienced in using the Internet, even for learning activities.

An experienced 13 year old black female in Michigan enthusiastically said,

*The Internet is fun, fun and work, because you can have fun on the Internet. When you are learning you can have so much fun just in learning. . . I have to have my Internet. It is just one thing I have to have. So I need it!*

The Internet appeared to improve the ability of people to communicate with others in new ways. Several were having e-mail conversations with friends or relatives a long ways a way.

A 13 year old female in Michigan said,

*I e-mail my family in Texas. That’s where I’m from.*

Some were chatting with friends in different countries.

A 59 year old male in Idaho noted,

*We had a Japanese exchange student stay with us for a year and when she went back we would call at Christmas time and this and that and all of the sudden we wrote her a letter and told her, hey, we have Internet access and here is our e-mail address and we have been corresponding back and forth.*

There also appear to be new learning approaches and skills that are developing as these rural people use the Internet. Several have readily accessed various resources or information sites to help them with their learning needs, including such actions as finding pictures to draw for an art project, e-mailing a professor about a college course requirement, and finding material for a homework assignment. Noted earlier, too, was the fact that several know their typing or keyboarding skills have improved. As Raupers and Roberts (1998) suggest, technology seems to motivate some students to learn. Even the popularity of playing online games among these rural subjects may be just the motivational reinforcement activity needed to move toward learning-related uses.

So, are there some indicators of success we can look for when assessing the Internet's impact on rural and other users? Here are several that appear to come from the interview data:

- A growth in computer and Internet knowledge, jargon, and use abilities
- An ability to evaluate Web pages and discern among them for their perceived value and usefulness
- An enhanced or growing confidence, curiosity, enjoyment, and even excitement about using the Internet
- Increases in both time and sophistication in using search engines or searching techniques
- Teachers recognizing that involvement with the Internet has improved the skills and abilities of young people
- Turning more to the Internet for the information, knowledge, and resources required for meeting life's needs

Future research efforts are needed to verify, add to, and even quantify such indicators. However, an important lesson learned from this research effort is that having access to broadband Internet can make an important difference in the lives of many people.

### **Impact on Community**

The final research question listed earlier for this research effort was to determine what kind of an impact broadband access to the Internet has on a community. Looking at just three sites, only two of which were in a true community setting, is a real limitation in answering this question. However, out of the interview data and observations this researcher made of many people using the computer labs, some beginning insight is possible.

In Marsing, Idaho, and Kinross, Michigan, the computer labs appear to have made a real difference, not only in the lives of many people, but also on the communities in which they live. For example, in a small community it is a place to go and do something meaningful when there may be few alternatives.

A 12 year old male in Michigan noted the following:

*When I first came and started working on the computers, it encouraged me to come here more and more. I come in here every day now.*

A 13 year old female in Michigan compared her current situation with where she used to live.

*It has been great here because I learned how to do a lot more stuff on computers and stuff and it has been just great. We didn't have anything like this in Texas.*

In a small rural community, the computer lab can even be perceived as a place where people, especially youth, feel safe.

A young Hispanic male in Idaho, sounding wiser than his 14 years, said it this way:

*Internet is fast and . . . keeps kids off the streets from like drugs. There has been a lot of drugs around here.*

A 42 year old female, a beginning user, who had only recently discovered the Center in Idaho, had brought her two teenage sons in every day. She noted this:

*It is a nice community center. . . . for your kids in the summer time. The kids get into a lot of trouble, but yet they can kill five hours here and they have so much fun . . . It is beneficial to us just being able to have some continuity with the community that we just started living in.*

It also is a place where young people can learn or at least have reinforced personal values, respect for others, and the protocols for successful living.

A 12 year old American Indian female, and a beginning user in Michigan, talked about how Tyler, the computer lab coordinator, reinforced rules about no swearing:

*But it has been very helpful because then more people like get out of here by swearing and Tyler used to look around and make sure they don't do that and if they do that they get in trouble because we're not allowed to swear.*

A 19 year old male in Michigan, an experienced user, realized that he needed to abide by the rules in existence:

*. . . I kind of let a few (pause) a little bit of bad language would slip every once in a while and he has got rules and I'm like, oops.*

A 47 year old male in Michigan who is a beginner, realized that the rules were for everyone's benefit:

*We used to have chat up here and a lot of kids was [sic] getting on the chat and there was a lot of just unsafe things going on and he stopped it . . . he's doing a thing now*

*where he is letting the adults chat but not the kids chat. But with the adults he is still going to be monitoring which I had no problem, because I can understand it is for our safety and his safety, too.*

In some respects, having access to the Internet through a computer lab that pulls people of all ages together for a common purpose, is building on the educative community notions popularized by the community school movement a few decades ago (Hiemstra, 2000).

A 55 year old female in Idaho who is experienced at using the Internet talked about how she uses the Internet to help her connect with the community:

*I like to look up information about educational things for my kids at school, different schools, programs, book clubs, places that sell books. I just like going on and getting information whatever . . . happens to be going on in my life at that time.*

A couple of people made direct reference to the impact on community.

A 17 year old female in Idaho made a frequent journey of several miles to the computer lab from her own community:

*The Resource Center has been very good because there's not a lot of places you can go where you can get Internet access and because we live in Homedale and its so small and we really don't have any resources.*

A 55 year old female in Idaho adds to the notion of a direct impact on community:

*I want to add, though, that the Marsing Resource Center has been a great addition to the town. I think there's a lot of potential to be helpful to this community. They have done a lot and they can do more.*

There is some evidence that the computer labs can serve as a stimulus in community capacity building, where administrators, teachers, volunteers, and even users of the Internet begin developing a desire for more learning, exposure to ideas, and computer-related courses. Various learners, for example, talked about wanting to take some courses. Here is a sampling.

A beginner in Michigan, 13 year old female, was excited to be learning new skills:

*I learned how to use a digital camera and make movies on it. I did that all day yesterday. I did that all day yesterday. And then I went to load material. Tyler showed that to me yesterday. [She and two other girls were actually walking around with the digital camera during interviews with others making new material to upload.] Also, how to get to the painting thing where you can paint them.*

A 54 year old female in Idaho, who was experienced with using the Internet, had desires for learning new skills:

*As far as educational courses . . . that is another area that would be very interesting to me. One thing that I would really like would be a course that you could, maybe an*

*Internet course, that you could go in and find out . . . well, where to find and download the Federation papers, you know, documents. Where you would find . . . I don't know how to access the Library of Congress.*

A 48 year old female in Idaho with experience expressed a desire for more courses related to computers:

*I am very hopeful that they will increase the amount of classes that they offer and I hope that the community will take them.*

Various training implications arise from such needs and desires. Administrators and coordinators will need help in learning how to take a broader view of their roles as contributing to a community's development. Teachers and facilitators of learning will need to be found for any new courses and trained on how to use the Internet effectively and efficiently as an educational aid. Even users, themselves, can be helped to become savvier about employing the Internet as a learning tool.

This notion of capacity building harkens back to the ideas of many years ago when Biddle and Biddle (1965) were noting that developing a community really means human development. In many ways, sitting at a computer screen and accessing the Internet can be seen as a solitary activity that keeps people apart, rather than contributing to a community by developing human capacity. However, the necessary act of journeying to a centrally located community center to access the Internet brings people of all ages and walks of life together over a common need. As suggested by Schrage (1999), the AISEP efforts may be demonstrating an innovative new model for reinvigorating the rural community.

### **From Reflections to the Future**

This researcher was able to take only a brief snapshot in time of how rural people in three locations use, think about, and incorporate into their lives access to broadband Internet via satellite transmissions. Thus, any reflections that are offered must be considered with a certain amount of caution. However, an important outcome of a qualitative research effort is that it enables the researcher to live even for a short time through the eyes, minds, and experiences of the people being studied.

Such an insertion into the lives and communities of people is, at best, imperfect in helping a researcher form a real picture of the reality such people experience. This researcher struggled with that imperfect reality. Were enough questions asked? Were too many asked? Were the right kind of probing or follow-up questions used? Were the interpretations of typed transcripts, field notes, and memos about perceptions accurate? Did personal biases and the researcher's generally positive nature creep into those evolving perceptions? Did the researcher select quotes that tended to match what words were expected to have been found in these communities while overlooking others? Did perceptions of self as a researcher, as a person experienced with technology, and even as an avid Internet user color any data analyses?

There also are some obvious things that were not learned in this study effort. For example, there is always a certain amount of built-in selectivity in terms of who makes their way to a computer lab in the first place. Finding volunteers from that selected group means many others are not studied. We need to know why some people don't use the computer labs. We need to know about those who began using it, but for various reasons did not continue. We need to know what more can be done to help such labs become more widely known within their communities.

Recognition of such struggles and unanswered questions is important, for it serves as a constant reminder, both for the researcher and for the reader of this report, that the imperfect world of research still results in new knowledge and understanding. Thus, from the gestalt surrounding this total effort to understand more about how rural people use the Internet when there is a broadband connection, it is possible to make several observations. It is anticipated that reflecting on these observations will help planners, administrators, and even funders think about the future for Internet access in rural and remote areas.

### **Computer Equipment Limitations**

An obvious cornerstone to access of the Internet, no matter the location, is computer equipment. It must be adequate for connecting, printing, storing, scanning, and all the other functions that make for a successful experience. Several respondents talked about the limitations they faced such as older computers, down times due to weather or limited hours, and cramped quarters.

A 17 year old female in Idaho who also does some volunteering for the Center noted this:

*Couple more computers would be nice. Most days we have tons of kids in here and we're all filled up and there are still more coming in waiting to use the computers.*

A 30-39 year old female in Idaho said,

*Get the hours to go maybe til 7 to give the kids more time. More computers I guess . . . in the school year it is impossible. . . . I wish they had a bigger building, more room.*

A 47 year old male in Michigan with only beginning experience with the Internet, talked about weather related problems at least as he perceived them.

*Well, the only trouble we have is I've got on a few times and I'd be talking with somebody and the computer would crash. With a satellite, I hear, and if the weather's real bad, real cloudy, we have come up here and not been able to get on because the signals aren't going out.*

Thus, it is important to examine criteria such as numbers of computers, computer upgrade policies, building size, and hours of operation when looking at providing Internet access in rural areas. Of course there are numerous financial implications, but these must be overcome if those living in rural and remote locations are to be served as well as those living in urban areas. In many respects, state and national politicians must make meeting rural people's Internet access needs an imperative through funded legislative initiatives.

### **Information Overload**

Almost everyone who accesses the Internet soon experiences the enormity of what is there. The good news is that almost anything about which you are interested will be addressed in some way via multiple Web sites. The bad news is that almost anything about which you are interested will be addressed *ad nauseam* via multiple Web sites. The resulting information overload can be daunting, to say the least, especially for a new Internet user.

Several interviewees in the current study expressed concerns about the bombardment of information when working with the Internet. This comment from a 17 year old female in Michigan is typical: “There is just so much to look into that it is almost like you don’t know what to choose.” Thus, future attention must be given to providing initial orientation on using the Internet for new users, helping people understand the best search engine techniques, and giving guidelines for evaluating Web sites. In essence, we must spend new energy in discussing ways of dealing with lots of information, as the situation will only grow bigger over time.

### **Distance Education**

The power of the Web in meeting learning needs through online courses has been successfully demonstrated for several years. Indeed, the American Distance Education Consortium was developed to promote the creation and provision of high quality distance education programs for diverse audiences. However, not as much use of the Internet for online courses or in working with others on learning efforts was found among these interviewees as was expected. Limitations in the data collection effort, and the fact that only a small portion of those using the computers in these Idaho and Michigan sites, may have skewed the findings.

Even still, the little involvement that was found and the success of WebQuest efforts in Idaho suggest that the potential is there. Therefore, future programs in online formats may meet some of the learning needs of rural people. Another option could be Webcasts to specific rural communities as a way of enhancing both individual and community-specific learning opportunities. Simply working with local administrators and teachers to help them understand what is already available through various distance education providers, might meet the needs of various community residents.

### **Meeting Medical and Legal Needs**

People living in rural and remote areas often are at a disadvantage in terms of finding those who will advocate for them when they have medical or legal needs. Financial limitations, social service or specialized medical organizations located in a town many miles away, and even a reluctance to depend on others can act as barriers in securing vital information. The Internet has the potential to help people secure some related knowledge.

Some of the people interviewed for this study, for example, described how they turn to the Internet for medical information.

A 47 year old male in Michigan with beginning experience with the Internet, has diabetes. He describes how the Internet has helped him cope:

*Well, the sites I pull, on the diabetes, they’ve got sites where medical doctors share their information, have sites on there, actually people who have diabetes Type I, and you can pull that site up and say their information might be a short story book or like a term paper. The information that they’ve gathered and what they’ve learning.*

A 48 year old woman in Idaho who is experienced talked about finding medical information:

*Yes, we look for medical . . . if we have a question, instead of going to the encyclopedia, we go to the Internet.*

A 30-39 year old woman in Idaho, also with experience, was interested in finding some medical information:

*I put in the word emphysema and Google came to a whole list of different things you could find out about emphysema and the one I went to it said, diagrams of the lungs, and you click onto that and that takes you to a Web site that has everything you'd want to know about the disease including what your lungs look like.*

Other interviewees talked about special situations they were facing that had legal implications.

The woman just described above used the Internet to find information to help her children?

*I've used it to research child support laws for my kids.*

A 42 year old female in Idaho with only beginning experience, had a similar need met by the Internet:

*Oh, I look up information in order to get my child support. How to hire a lawyer, just tons of information if can get it.*

Other specialized needs related to such areas as finances and searching for jobs, and even finding information about where a certain relative was buried, were some other uses described by these interviewees. Future research to uncover the variety of specialized uses by rural people can become the basis for developing various kinds of adult, and youth, education programs.

### **Language Promotion/Preservation**

One of the uses of the Internet commented on by a few respondents had to do with languages. Earlier in this report quotes were presented about a couple of youth who used the Internet to find translations for words in Dutch or in Spanish. A 14 year old Michigan youth with considerable experience had an interesting way of supplementing her growing knowledge of French: "I think it is cool if I can talk with people who actually know the language. So I will go to French chat rooms and stuff like that and chat a little bit."

A unique use was made by a 29 year old American Indian male in Michigan.

*Due to the fact that I am tribal, I do go periodically and check in there because I do a lot of stuff for the tribal council. History and . . . languages. I am trying to introduce my children to our tribal language and I am also trying to relearn.*

The work of other ADEC researchers with American Indians will, no doubt, supplement such findings about language. It is imperative that future researchers work to understand how such important needs as language promotion and preservation can be better understood and addressed.

## Understanding the Role for Teachers and Administrators

It was not the intent of this research effort to examine the role teachers and administrators play in the efforts by rural people to access and use the Internet. However, as was shown in several previous quotes, teachers and administrators were mentioned as playing vital roles. Here are some additional thoughts from interviewees on the role such people play.

A 42 year old female in Idaho who was only a beginner, appreciated the extras that the Center Director did for her and her two boys. After learning that the three were walking 10 miles round trip every day to come to the Center because they had no other transportation, the Director went the extra mile:

*I said, do you mind if I use your phone when I come in because I have to walk so far and I don't have one. And right there it opened up for me. Darlyne has been giving us a ride home every day.*

A 47 year old male in Michigan, a beginning user, gave lots of support to the lab Coordinator, even though at 21 he was a lot younger than the interviewee and quite new to his coordinating job:

*Tyler, he knows his stuff; he's good and he is still learning, too, and, I mean, I enjoy coming up here and work with him.*

A 40-59 year old female in Idaho and an experienced user, really appreciated the help she had received:

*Well, I think the people down there at the Center are great. Pat . . . was the one who was the instructor and she was very conscientious and wanted to make sure the people taking her class got everything that they should be learning and I think she went out of her way to make it a successful experience.*

Therefore, more needs to be understood about the importance such people play in supporting people as they use the Internet. Future study efforts should direct some attention to both their roles and the way they can be supported in even improving their efforts.

## Working with Minorities

Another unanticipated outcome was hearing the perceptions by some interviewees in Idaho that more needs to be done to meet the specific needs of youth, especially Hispanic youth. One Idaho adult said, "I think it is really important for Marsing and the community to recognize, honor, and respect the bilingual nature of participants and make that okay." Another adult had a related thought: "I think it behooves us to have as good an educational tool for the Hispanic kids as we possibly can."

A 59 year old male in Idaho, and experienced with the Internet, had an interesting perspective:

*I don't know exactly how to say that, but we have a tremendous Hispanic population, probably one of the largest Hispanic population in . . . Marsing, Idaho, and probably I'm saying 80 or 90% of these people do not have Internet access or home computers*

*and so basically this is a resource for them for their kids that without it, they wouldn't have it. Just got back from a seminar and they said by 2008 we're looking at 40% Asian and 30% Hispanic and 20% African-Americans and the rest of us mongrels. The whole thing about it, I think it behooves us to have as good an educational tool for the Hispanic kids as we possibly can. I think it just makes sense for us to do that.*

A 13 year old Hispanic female in Idaho, and a beginner, had a particular take on how Hispanic kids were treated when they were asked to wait outside the lab:

*Well, when a lot of people come in the people that were on the computers have to get off, like get off the computers. We can't go outside because it's too hot and so we just tried to go in the shade. It was too hot to just stand there. . . . she said we had spent enough time on it.*

Interviewer: *Anything else.*

*Sometimes when kids are a little rowdy, even if they didn't really do anything wrong, she says they can't come back for two days. I don't know if she really cares.*

Still another adult in Idaho talked to this researcher after the tape recorder was turned off and suggested some people working at the Center were not as inclusive as they could be, were too controlling of kids at times, and probably didn't understand how to work well with kids in terms of child development issues. This was confirmed in private conversations with some Cooperative Extension personnel. Thus, future efforts are needed to help people who teach and administer Internet-related programs in rural areas understand more about working with people of all ages and backgrounds in a learning environment.

### **A Concluding Thought**

Development of the Advanced Internet Satellite Extension Project came about because ADEC leaders believed that there were better ways of serving those living in rural and remote areas through technology. The National Science Foundation provided important financial support so that new models and approaches to providing access to the Internet could be determined. It is anticipated the results will demonstrate that Satellite transmission of broadband Internet is an important means for providing such access.

What the future holds for rural and remote areas is still unclear. Foundation and other outside support will not be possible to meet all such needs across the United States. Demonstrating the viability of Internet access in rural areas and that people living in those areas will use it, can serve as the basis for finding more ways of meeting such needs.

Stone, Itoi, and Flynn (2004) provide some insight on what may be new ways of thinking about the situation. They describe how EZ Wireless in Hermiston, Oregon, decided to tackle the problem of providing high-speed Internet access in rural areas. Through 35 towers and 75 antennas, they broadcast a signal that covers all of a rural community through their Wi-Fi blanket. Such efforts added to what has been demonstrated through the AISEP suggest that means for ensuring that people living in rural and remote areas can be found.

Having broadband access to the Internet is very important to many people living in rural areas and will likely become more important in the future as our information age continues to expand. We cannot let

those in the remote areas of the country be left behind. An 11 year old female in Michigan spoke about how important this technology is to her: “In my sleep I dream about computers.” Let’s turn that dream into reality for everyone.

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**Appendix I**  
**Interview Schedules, Consent Forms, and Explanatory Documents**  
Learning and High Speed Internet Connections  
**Interview Schedule - Youth**

*Respondent ID No.* \_\_\_\_\_

1. What is your age? \_\_\_\_\_                      2. What grade are you in? \_\_\_\_\_

3. What is your birth order? \_\_\_\_\_

4. How long have you been using the Internet or surfing the Web? \_\_\_\_\_

5. What types of activities do you typically use the Internet for? (Probing examples as needed and to seek clarification: e-mail, instant messaging, talking with others, surfing, reading news, accessing information, learning new information when you need it, shopping, hobbies, finding travel or medical information, homework, playing games, etc.)

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6. What type of resources or Web pages do you go to on the Internet? (Probing examples as needed: dictionaries, encyclopedias, gaming sites, educational resources, search engines, movie reviews, music sites, etc.—obtain specific URLs if possible)

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7. How do you evaluate a Web page? (Probing examples on checking for accuracy, validating information, authenticity of the information, etc.)

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8. Do you use the Internet differently now than when you first began using it? \_\_\_\_ If yes, how?

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9. Does any of your use of the Internet involve taking classes, your own education, or other learning activities? (Probing examples as needed on taking an on-line course, discussing homework assignments with classmates, instant messaging/What rooms, videoconferencing, just in time learning, etc.) If yes, please describe your experiences.

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10. Does any of your use of the Internet involve working together with anyone else over the Internet on some type of learning activity? If yes, please describe how you work together.

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11. If you do use the Internet to learn or to work together with anyone else, how helpful has this been for you (have the respondent describe this in several words).

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12. On a scale from one to five, have you enjoyed working with your Internet activities here at \_\_\_\_\_, with one being have not enjoyed and five being have very much enjoyed? \_\_\_\_\_  
Can you explain your answer in more detail?

[1=have not enjoyed; 2=have enjoyed a little bit; 3=have enjoyed it some; 4=have enjoyed it quite a bit; 5=have very much enjoyed it]

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13. On a scale from one to five, tell me how you would like to work with the various internet activities here in the future, with one being I would not like to work with them anymore than I am and five being I would like to work with them much more than I am? \_\_ Can you explain your answer in more detail?

[1=would not want to work with them anymore than I am; 2=I would work with them a little bit more; 3=I would work with them some more; 4=I would work with them quite a bit more; 5=I would very much like to work with them much more than I am]

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14. In working with the various Internet activities here, have you been able to work by yourself some of the time? \_\_\_\_\_ Can you explain this more?

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15. In working with the various Internet activities here, have you been able to use what you have learned in your school activities or in using computers and computer resources? \_\_\_\_\_ Can you explain this more?

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16. In question 5 above, you described how you typically use the Internet. I am going to remind you of some of these, and for each, tell me about your learning experiences, how you carried them out, how you feel about the information you found, etc.

Learning resource description: \_\_\_\_\_

Conditions/outcomes description: \_\_\_\_\_

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Learning resource description: \_\_\_\_\_

Conditions/outcomes description: \_\_\_\_\_

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Learning resource description: \_\_\_\_\_

Conditions/outcomes description: \_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

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17. As you have worked with the Internet here at (provide the location), describe the kinds of things that have both helped and limited you. (Probe as needed with indicators about specific barriers, limitations, successes, etc.)

18. Did you receive the help you needed in learning about computers and the Internet?

19. What skills do you have now that you didn't have before the Internet was available? (Probe as needed with computer skills – technical and learning, learning skills overall, etc.)

20. How has being able to use the Internet changed your learning approaches? (Probe as needed with what you learn about, how you go about learning, use of self-directed learning approaches, how you define learning, how has it helped your learning, how has it hindered your learning, etc.)

21. How has being able to use the Internet changed you as a learner or as an individual? (Probe with new or alternative approaches to learning, finding information, using computers, etc.)

22. What are the various ways you talk or message with others over the Internet? (Probe on real time and asynchronous communications, the value of dialogue, etc.)

23. As we conclude our time together, what kind of recommendations do you have for the center here in terms of computers, the Internet, learning help or resources, etc.?

Learning and High Speed Internet Connections  
**Interview Schedule - Adults**

*Respondent ID No.* \_\_\_\_\_

1. What is your age or age category? \_\_\_ 18-22 \_\_\_ 23-29 \_\_\_ 30-39 \_\_\_ 40-59 \_\_\_ 60 or +

2. What is your birth order? \_\_\_\_\_

3. What is your major employment? \_\_\_\_\_

4. How long have you been using the Internet or surfing the Web? \_\_\_\_\_

5. What types of activities do you typically use the Internet for? (Probing examples as needed and to seek clarification: e-mail, instant messaging, talking with others, surfing, reading news, accessing information, learning new information when you need it, shopping, hobbies, finding travel, medical, or financial information, taking a course, finding employment information, playing games, etc.)

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6. What type of resources or Web pages do you go to on the Internet? (Probing examples as needed: dictionaries, encyclopedias, gaming sites, educational resources, search engines, movie reviews, classified ads, etc.—obtain specific URLs if possible)

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7. How do you evaluate a Web page (Probing examples on checking for accuracy, validating information, authenticity of the information, etc.)

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---

8. Do you use the Internet differently now than when you first began using it? \_\_\_ If yes, how?

---

---

9. Does any of your Internet usage involve taking classes, your own education, or other learning activities? (Probing examples on taking an on-line course, discussing learning with others, instant messaging/What rooms, just in time learning, videoconferencing, etc.). If yes, please describe this.

---

---

10. Does any of your use of the Internet involve working together with anyone else over the Internet on some type of learning activity? If yes, please describe how you work together.

---

---

11. If you do use the Internet to learn or to work together with anyone else, how helpful has this involvement been for you (have the respondent describe this in several words).

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12. In working with any learning activities over the Internet, do you enjoy working by yourself or with others? \_\_\_\_\_ Can you explain this more?

---

---

13. In question 5 above, you described how you typically use the Internet. I am going to remind you of several of these, and for each, tell me about your learning experiences, how you carried them out, how you feel about the information you found, etc.

Learning resource description: \_\_\_\_\_

Conditions/outcomes description: \_\_\_\_\_

---

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Learning resource description: \_\_\_\_\_

Conditions/outcomes description: \_\_\_\_\_

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Learning resource description: \_\_\_\_\_

Conditions/outcomes description: \_\_\_\_\_

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14. As you have worked with the Internet here at (provide the location), describe the kinds of things that have both helped and limited you. (Probe as needed with indicators about specific barriers, limitations, successes, etc.)

15. Did you receive the help you needed in learning about computers and the Internet?

16. What skills do you have now that you didn't have before the Internet was available? (Probe as needed with computer skills – technical and learning, learning skills overall, etc.)

17. How has being able to use the Internet changed your learning approaches? (Probe as needed with what you learn about, how you go about learning, use of self-directed learning approaches, how you define learning, how has it helped your learning, how has it hindered your learning, etc.)

18. How has being able to use the Internet changed you as a learner or as an individual? (Probe with new or alternative approaches to learning, finding information, using computers, etc.)

19. What are the various ways you talk or message with others over the Internet? (Probe on real time and asynchronous communications, the value of dialogue, etc.)

20. As we conclude our time together, what kind of recommendations do you have for the center here in terms of computers, the Internet, learning help or resources, etc.

INFORMED CONSENT DOCUMENT FOR YOUTH

We are doing a study to understand more about how people use the faster computers at the Marsing Resource Center and to determine if using faster computers makes a difference in their learning activities. We are asking you to help because you have used or will be using the computers at the Center.

If you agree to be in our study, we are going to ask you some questions about using the Center's computers and the Internet. We are interested in what Internet sites you use and any problems you had in using the Internet. We also want to know about how the Internet has or has not helped you to learn new information.

You may ask questions that you have about this study at any time. Also, if you decide at any time not to finish, you may stop whenever you want. Remember, these questions are only about your experiences and what you think. There are no right or wrong answers because this is not a test.

Signing this paper means that you have read this or had it read to you and that you want to be in the study. If you don't want to be in the study, don't sign the paper. Remember, being in the study is up to you, and no one will be mad if you don't sign this paper or even if you change your mind later.

Your Signature \_\_\_\_\_ Date \_\_\_\_\_

Signature of Investigator \_\_\_\_\_ Date \_\_\_\_\_

## DOCUMENTO DE CONSENTIMIENTO INFORMADO PARA JÓVENES

Estamos haciendo un estudio para entender mejor como la gente usa las computadoras de alta velocidad en el Marsing Resource Center y para determinar si el uso de tales computadoras hace una diferencia en sus actividades de aprender. Le pedimos la ayuda a Ud. porque ha usado o usará las computadoras en el Marsing Center.

Si Ud. consiente en participar en el estudio, le vamos a hacer varias preguntas sobre el uso de las computadoras del Center y el internet. Tenemos interés en los sitios de internet que usa y cualquier problema que haya tenido en el uso del internet. También, deseamos saber como el uso del internet le ha ayudado o no en aprender nueva información.

Ud. puede hacer preguntas sobre el estudio en cualquier momento. Además, si decide en cualquier momento que no desea continuar, puede dejar el estudio cuando quieras. Recuerde que estas preguntas solamente se tratan de sus experiencias y lo que piensa. No hay respuestas correctas ni incorrectas porque no es un examen.

La firmación de esta hoja significa que Ud. ha leído la hoja o que la hoja le fue leído, y que desea participar en el estudio. Si no desea participar en el estudio, no firme la hoja. Recuerde que su participación en el estudio es su decisión, y que nadie se enojará si no firma esta hoja o si cambia de opinión después.

Su firma \_\_\_\_\_

Fecha \_\_\_\_\_

Firma del investigador \_\_\_\_\_

Fecha \_\_\_\_\_

## INFORMED CONSENT DOCUMENT FOR PARENTS

**Title of Study:** Learning and High Speed Internet Connections  
**Investigator:** Roger Hiemstra, PhD, Senior Research Associate, American Distance Education Consortium

This is a research study. Please take your time in reading this document and in deciding if you would like your child to participate. Feel free to ask questions at any time.

### **INTRODUCTION**

The purposes of this study are to understand more about how people use the faster computers at the Marsing Resource Center and to determine if using faster computers makes a difference in their learning activities. Your child is being invited to participate in this study because he or she has used the computers at the Center. We ask that you read this document and ask any questions you may have before agreeing that your child can be in the study. This study is being conducted by the American Distance Education Consortium at the University of Nebraska in Lincoln, Nebraska, in cooperation with the Center and the University of Idaho.

### **DESCRIPTION OF PROCEDURES**

If you agree to have your child participate in this study, this participation may last for up to three months. It will involve an initial interview of 30-45 minutes conducted at the Center by Dr. Hiemstra in July or August, 2003. In case a scheduling conflict happens, Dr. Hiemstra may carry out the interview over the phone. During the study you may expect the following study procedures to be followed. In the initial interview, your child will be asked several questions about using the Center's computers, including the types of Internet resources used and any problems encountered in using the Internet. In addition, your child's opinions will be sought regarding how using the Internet has or has not helped in learning new information. Your child may skip any question not wished to be answered or that causes any discomfort. A follow-up phone call will be used if clarification is needed on any comments made during the interview.

Information from the interviews will be recorded in handwriting on interview forms. Interviews also will audio-taped to help Dr. Hiemstra recall comments made and the audio tapes will be erased at the completion of the study. The interview information will be word-processed (typed) for analysis purposes. You may be present during the interview if you so desire.

### **RISKS**

The possible risks include the inconvenience your child may experience in being available for an interview during the time period Dr. Hiemstra is at the Marsing Resource Center and any embarrassment that may come from talking with a stranger about using the Internet.

### **BENEFITS**

If your child decides to participate in this study there may be no direct benefit to you or your child. It is hoped, however, that the information gained in this study will benefit the Marsing Center and society in general by providing information that will assist teachers and others improve the way the Internet can be used to help young people with their learning efforts.

## **COSTS AND COMPENSATION**

There is no physical component to this study, so there is minimal risk of physical injury. You will not have any costs from your child participating in this study. There also will be no compensation for your child participating in this study, other than knowing that the study results may help Center officials and others as they work to improve the Internet as a resource for education, learning, and acquiring needed information.

## **PARTICIPANT RIGHTS**

Your child's participation in this study is completely voluntary and he or she may refuse to participate or may leave the study at any time. If your child decides not to participate in the study or to leave the study early, this decision will not result in any penalty or loss of benefits to which you are otherwise entitled.

## **CONFIDENTIALITY**

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, the National Science Foundation (the sponsor of the project that delivers high speed Internet to the Marsing Resource Center), and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy the gathered information for quality assurance and data analysis. These records could contain private information about reported attitudes, opinions, and experiences, but your child's name will not be associated with such information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken: (a) each person interviewed will be assigned a unique code that will be used on forms instead of their name (only the researcher will know the name associated with that unique code for purposes of possible follow-up by telephone); (b) only individuals associated with the research study and the American Distance Education Consortium (the coordinating agency for the National Science Foundation) will have access to study records. The typed information will be stored as computer files and may be included as part of the American Distance Education Consortium Web site (<http://www.adec.edu/nsf/index.html>). However, each person interviewed will never be associated by name with any of the stored information. If the results of this study are published or any information from an interview is quoted for purposes of illustration, you and your child's identity will remain strictly confidential.

## **QUESTIONS OR PROBLEMS**

You or your child are encouraged to ask questions at any time during this study. For further information about the study contact Dr. Roger Hiemstra (315-637-3527; 315-247-3730; [rogerhiemstra@hotmail.com](mailto:rogerhiemstra@hotmail.com)). If you want to talk to someone other than the researcher, you also may contact Darlyne Aleksich at the Marsing Resource Center (208-896-5185) or Maureen Toomey, Extension Associate 4-H/Youth, University of Idaho, State 4-H (208-454-7648). If you have any questions about the rights of research subjects or research-related injury, please contact the Institutional Review Board responsible for this study at the Human Subjects Research Office (515-294-4566; [austingr@iastate.edu](mailto:austingr@iastate.edu)) or the Research Compliance Officer, Office of Research Compliance (515-294-3115; [dament@iastate.edu](mailto:dament@iastate.edu)).

If you have questions later, you may contact Darlyne Aleksich, Roger Hiemstra, or Maureen Toomey at the phone numbers or e-mail addresses provided above.

**SUBJECT SIGNATURE**

Your signature indicates that you voluntarily agree to have your child participate, that the purposes of the study are clear to you, that you have been given time to read this document, and that any questions you have were satisfactorily answered. You will receive a copy of the signed and dated written informed consent form.

Youth's Name (printed) \_\_\_\_\_

\_\_\_\_\_  
(Signature of Parent/Guardian/Legally Authorized Representative)

\_\_\_\_\_  
(Date)

**INVESTIGATOR STATEMENT**

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits, and the procedures that will be followed in this study and has voluntarily agreed to participate.

\_\_\_\_\_  
(Signature of Person Obtaining Informed Consent)

\_\_\_\_\_  
(Date)

## DOCUMENTO DE CONSENTIMIENTO INFORMADO PARA PADRES

**Título del estudio:** El aprender y las conexiones de alta velocidad al internet  
**Investigador:** Roger Hiemstra, PhD, Senior Research Associate, American Distance Education Consortium

Esto es un estudio de investigación. Haga el favor de leer con cuidado este documento antes de tomar la decisión sobre la participación de su hijo. Tenga confianza en hacer cualquiera pregunta.

### **INTRODUCCIÓN**

Los propósitos de este estudio son entender mejor como la gente usa las computadoras de alta velocidad en el Marsing Resource Center, y determinar si el uso de tales computadoras hace una diferencia en sus actividades de aprender. Su hijo está invitado a participar en este estudio porque él/ella ha usado o estará usando las computadoras en el Marsing Center. Pedimos que Ud. lea este documento y haga cualquiera pregunta que tenga antes de consentir en la participación de su hijo en el estudio. El estudio está dirigido por el American Distance Education Consortium de la Universidad de Nebraska en Lincoln, Nebraska, en cooperación con el Marsing Resource Center y Universidad de Idaho.

### **DESCRIPCIÓN DE LOS PROCEDIMIENTOS**

Si Ud. consiente en la participación de su hijo en el estudio, tal participación puede durar hasta tres meses. Consistirá en una entrevista inicial de 30-45 minutos en el Marsing Resource Center por Dr. Hiemstra en julio o agosto, 2003. En caso de conflictos de horario, Dr. Hiemstra puede dar la entrevista por teléfono. Durante el estudio, Ud. puede esperar los siguientes procedimientos. Durante la entrevista inicial, el entrevistador le hará varias preguntas a su hijo sobre el uso de las computadoras en el Center, incluso los tipos de los recursos usados del internet y cualquier problema sufrido en el uso del internet. Además, el entrevistador le pedirá de su hijo sus opiniones en cuanto a como el uso del internet ha ayudado o no en aprender nueva información. Su hijo puede saltar cualquiera pregunta que no desee contestar o que le haga sentir incómodo. El entrevistador empleará una entrevista complementaria por teléfono solamente si se necesita clarificación del comentario hecho durante la entrevista inicial.

La información de las entrevistas será grabada a mano en formularios de la entrevista. También, las entrevistas serán grabadas en cinta para ayudarle a Dr. Hiemstra recordar los comentarios hechos, y las cintas serán borradas al fin del estudio. La información de las entrevistas será escrita a máquina con el fin de análisis. Ud. puede asistir a la entrevista si desea.

### **RIESGOS**

Los riesgos posibles incluyen la molestia su hijo puede encontrar en hacerse disponible para una entrevista durante el tiempo que Dr. Hiemstra está en el Marsing Resource Center y cualquier desconcierto que pueda resultar de hablar con un desconocido sobre el uso del internet.

## **BENEFICIOS**

Si su hijo decide participar en este estudio es posible que no haya ningún beneficio directo para Ud. o su hijo. Sin embargo, se espera que la información juntada del estudio beneficiará al Marsing Center y la sociedad en general por proveer información que ayudará a profesores y otros para mejorar la manera en que se usa el internet para ayudar a los jóvenes con sus esfuerzos de aprender.

## **COSTOS Y COMPENSACIÓN**

No hay ningún componente físico en este estudio, entonces hay riesgo mínimo de herida física. Ud. no tendrá ningún costo de la participación de su hijo en este estudio. Tampoco no habrá ninguna compensación por la participación de su hijo en este estudio, aparte de saber que los resultados del estudio puede ayudar a los administradores del Marsing Resource Center y otros mientras trabajan para mejorar el internet como recurso para la educación, el aprender, y en adquirir información necesaria.

## **DERECHOS DE LOS PARTICIPANTES**

La participación de su hijo en este estudio es completamente voluntaria y él/ella puede negar a participar o puede dejar el estudio en cualquier momento. Si su hijo decide no participar en el estudio o dejar el estudio temprano, tal decisión no resultará en ningún castigo o pérdida de los beneficios que ya son suyos.

## **CONFIDENCIALIDAD**

Los documentos que identifican a los participantes serán confidenciales hasta la extensión permitida por leyes y regulaciones aplicables, y los documentos no serán disponibles al público. Sin embargo, la National Science Foundation (el patrocinador del proyecto que provee el internet de velocidad rápida al Marsing Resource Center), y el Institutional Review Board (una comisión que repasa y aprueba los estudios de investigación de sujetos humanos) pueden examinar y/o copiar la información colectada para los propósitos de asegurar la calidad y análisis de datos. Estos documentos pueden incluir información privada sobre actitudes, opiniones, y experiencias presentadas, pero el nombre de su hijo no será asociado con tal información.

Para asegurar la confidencialidad hasta la extensión permitida por la ley, se tomarán las siguientes medidas: (a) cada persona entrevistada será dada un código único que reemplazará su nombre (solamente el investigador sabrá el nombre asociado con el código único con propósito de una posible entrevista complementaria por teléfono); (b) solamente individuos asociados con el estudio y el American Distance Education Consortium (la agencia coordinadora para la National Science Foundation) tendrán acceso a los documentos del estudio. La información escrita a máquina se archivará en computadora y puede ser incluida como parte del sitio del internet del American Distance Education Consortium (<http://www.adec.edu/nsf/index.html>). Sin embargo, nunca se asociará ninguna persona entrevistada por nombre propio con cualquiera parte de la información archivada. Si se publican los resultados de este estudio o si se cita alguna información de una entrevista con el propósito de ilustración, la identidad de su hijo y de Ud. permanecerá totalmente confidencial.

## **PREGUNTAS O PROBLEMAS**

Ud. o su hijo están animados a hacer cualquiera pregunta durante este estudio. Para información adicional sobre el estudio, póngase en contacto con Dr. Roger Hiemstra (315-637-3527;

315-247-3730; rogerhiemstra@hotmail.com). Si desea hablar con alguien además del investigador, también puede ponerse en contacto con Darlyne Aleksich del Marsing Resource Center (208-896-5185) o Maureen Toomey, Extension Associate 4-H/Youth, Universidad de Idaho, State 4-H (208-454-7648). Si Ud. tiene preguntas sobre los derechos de los sujetos de investigación o heridas asociadas con investigación, haga el favor de ponerse en contacto con el Institutional Review Board responsable para este estudio en Human Subjects Research Office (515-294-4566; austingr@iastate.edu) o el Research Compliance Officer, Office of Research Compliance (515-294-3115; dament@iastate.edu). Si Ud. tiene preguntas posteriormente, se puede contactar con Darlyne Aleksich, Roger Hiemstra, o Maureen Toomey por los números de teléfono o direcciones de correo electrónico arriba.

### **FIRMA DEL SUJETO**

Su firma indica que Ud. voluntariamente consiente en la participación de su hijo, que entiende los propósitos del estudio, y que fue dado el tiempo para leer este documento, y que cualquiera pregunta que tuviera fue contestada según su satisfacción. Ud. recibirá una copia firmada y fechada del formulario de consentimiento informado.

Nombre del joven (en letra) \_\_\_\_\_

\_\_\_\_\_  
(Firma del padre/guardián/apoderado legalmente autorizado)

\_\_\_\_\_  
(Fecha)

### **DECLARACIÓN DEL INVESTIGADOR**

Declaro que el participante fue dado tiempo suficiente para leer y aprender sobre el estudio y que todas sus preguntas fueron contestadas. Es mi opinión que el participante entiende el propósito, los riesgos, los beneficios, y los procedimientos que este estudio seguirá y el participante ha consentido voluntariamente en participar.

\_\_\_\_\_  
(Firma de la persona obteniendo consentimiento informado)

\_\_\_\_\_  
(Fecha)

## INFORMED CONSENT DOCUMENT FOR ADULT PARTICIPANTS

**Title of Study:** Learning and High Speed Internet Connections  
**Investigator:** Roger Hiemstra, PhD, Senior Research Associate, American Distance Education Consortium

This is a research study. Please take your time in reading this document and in deciding if you would like to participate. Feel free to ask questions at any time.

### **INTRODUCTION**

The purposes of this study are to understand more about how people use the faster computers at the Marsing Resource Center and to determine if using faster computers makes a difference in their learning activities. You are being invited to participate in this study because you have used or will be using the computers at the Marsing Center. We ask that you read this document and ask any questions you may have before agreeing to be in the study. This study is being conducted by the American Distance Education Consortium at the University of Nebraska in Lincoln, Nebraska, in cooperation with the Center and the University of Idaho.

### **DESCRIPTION OF PROCEDURES**

If you agree to participate in this study, this participation may last for up to three months. It will involve an initial interview of 30-45 minutes conducted at the Marsing Resource Center by Dr. Hiemstra in July or August, 2003. In case a scheduling conflict happens, Dr. Hiemstra may carry out the interview over the phone. During the study you may expect the following study procedures to be followed. In the initial interview, you will be asked several questions about using the Center's computers, including the types of Internet resources used and any problems encountered in using the Internet. In addition, your opinions will be sought regarding how using the Internet has or has not helped in learning new information. You may skip any question not wished to be answered or that causes any discomfort. A follow-up phone interview will be used only if clarification is needed on any comments made during the initial interview.

Information from the interviews will be recorded in handwriting on interview forms. Interviews also will audio-taped to help Dr. Hiemstra recall comments made and the audio tapes will be erased at the completion of the study. The interview information will be word-processed (typed) for analysis purposes.

### **RISKS**

The possible risks include the inconvenience you may experience in being available for an interview during the time period Dr. Hiemstra is at the Center and any embarrassment that may come from talking with a stranger about using the Internet.

### **BENEFITS**

If you decide to participate in this study there may be no direct benefit to you. It is hoped, however, that the information gained in this study will benefit the Marsing Resource Center and society in general by providing information that will assist teachers and others improve the way the Internet can be used to help people with their learning efforts.

## **COSTS AND COMPENSATION**

There is no physical component to this study, so there is minimal risk of physical injury. You will not have any costs from participating in this study. There also will be no compensation for participating in this study, other than knowing that the study results may help Marsing Center officials and others as they work to improve the Internet as a resource for education, learning, and acquiring needed information.

## **PARTICIPANT RIGHTS**

Your participation in this study is completely voluntary and you may refuse to participate or may leave the study at any time. If you decide not to participate in the study or to leave the study early, this decision will not result in any penalty or loss of benefits to which you are otherwise entitled.

## **CONFIDENTIALITY**

Records identifying participants will be kept confidential to the extent permitted by applicable laws and regulations and will not be made publicly available. However, federal government regulatory agencies, the National Science Foundation (the sponsor of the project that delivers high speed Internet to the Marsing Center), and the Institutional Review Board (a committee that reviews and approves human subject research studies) may inspect and/or copy the gathered information for quality assurance and data analysis. These records could contain private information about reported attitudes, opinions, and experiences, but your name will not be associated with such information.

To ensure confidentiality to the extent permitted by law, the following measures will be taken: (a) each person interviewed will be assigned a unique code that will be used on forms instead of their name (only the researcher will know the name associated with that unique code for purposes of possible follow-up by telephone); (b) only individuals associated with the research study and the American Distance Education Consortium (the coordinating agency for the National Science Foundation) will have access to study records. The typed information will be stored as computer files and may be included as part of the American Distance Education Consortium Web site (<http://www.adeconline.edu/nsf/index.html>). However, each person interviewed will never be associated by name with any of the stored information. If the results of this study are published or any information from an interview is quoted for purposes of illustration, your identity will remain strictly confidential.

## **QUESTIONS OR PROBLEMS**

You are encouraged to ask questions at any time during this study. For further information about the study contact Dr. Roger Hiemstra (315-637-3527; 315-247-3730; [rogerhiemstra@hotmail.com](mailto:rogerhiemstra@hotmail.com)). If you want to talk to someone other than the researcher, you also may contact Darlyne Aleksich at the Marsing Resource Center (208-896-5185) or Maureen Toomey, Extension Associate 4-H/Youth, University of Idaho, State 4-H (208-454-7648). If you have any questions about the rights of research subjects or research-related injury, please contact the Institutional Review Board responsible for this study at the Human Subjects Research Office (515-294-4566; [austingr@iastate.edu](mailto:austingr@iastate.edu)) or the Research Compliance Officer, Office of Research Compliance (515-294-3115; [dament@iastate.edu](mailto:dament@iastate.edu)).

If you have questions later, you may contact Darlyne Aleksich, Roger Hiemstra, or Maureen Toomey at the phone numbers or e-mail addresses provide above.

**SUBJECT SIGNATURE**

Your signature indicates that you voluntarily agree to participate, that the purposes of the study are clear to you, that you have been given time to read this document, and that any questions you have were satisfactorily answered. You will receive a copy of the signed and dated written informed consent form.

Your Name (printed) \_\_\_\_\_

\_\_\_\_\_  
(Your Signature)

\_\_\_\_\_  
(Date)

**INVESTIGATOR STATEMENT**

I certify that the participant has been given adequate time to read and learn about the study and all of their questions have been answered. It is my opinion that the participant understands the purpose, risks, benefits, and the procedures that will be followed in this study and has voluntarily agreed to participate.

\_\_\_\_\_  
(Signature of Person Obtaining Informed Consent)

\_\_\_\_\_  
(Date)

DOCUMENTO DE CONSENTIMIENTO INFORMADO  
PARA PARTICIPANTES ADULTOS

**Título del estudio:** El aprender y las conexiones de alta velocidad al internet  
**Investigador:** Roger Hiemstra, PhD, Senior Research Associate, American Distance Education Consortium

Esto es un estudio de investigación. Haga el favor de leer con cuidado este documento antes de tomar la decisión para participar. Tenga confianza en hacer cualquiera pregunta.

## **INTRODUCCIÓN**

Los propósitos de este estudio son entender mejor como la gente usa las computadoras de alta velocidad en el Marsing Resource Center y determinar si el uso de tales computadoras hace una diferencia en sus actividades de aprender. Ud. está invitado a participar en este estudio porque ha usado o estará usando las computadoras en el Marsing Center. Pedimos que Ud. lea este documento y haga cualquiera pregunta que tenga antes de consentir en participar en el estudio. El estudio está dirigido por el American Distance Education Consortium de la Universidad de Nebraska en Lincoln, Nebraska, en cooperación con el Marsing Resource Center y Universidad de Idaho.

## **DESCRIPCIÓN DE LOS PROCEDIMIENTOS**

Si Ud. consiente en participar en el estudio, su participación puede durar hasta tres meses. Consistirá en una entrevista inicial de 30-45 minutos en el Marsing Resource Center por Dr. Hiemstra en julio o agosto, 2003. En caso de conflictos de horario, Dr. Hiemstra puede dar la entrevista por teléfono. Durante el estudio, Ud. puede esperar los siguientes procedimientos. Durante la entrevista inicial, el entrevistador le hará varias preguntas sobre el uso de las computadoras en el Center, incluso los tipos de los recursos usados del internet y cualquier problema sufrido en el uso del internet. Además, el entrevistador le pedirá sus opiniones en cuanto a como el uso del internet ha ayudado o no en aprender nueva información. Ud. puede saltar cualquiera pregunta que no desee contestar o que le haga sentir incómodo. El entrevistador empleará una entrevista complementaria por teléfono solamente si se necesita clarificación de comentario hecho durante la entrevista inicial.

La información de las entrevistas será grabada a mano en formularios de la entrevista. También, las entrevistas serán grabadas en cinta para ayudarle a Dr. Hiemstra recordar los comentarios hechos, y las cintas serán borradas al fin del estudio. La información de las entrevistas será escrita a máquina con el fin de análisis.

## **RIESGOS**

Los riesgos posibles incluyen la molestia Ud. puede encontrar en hacerse disponible para una entrevista durante el tiempo que Dr. Hiemstra está en Marsing Center y cualquier desconcierto que pueda resultar de hablar con un desconocido sobre el uso del internet.

## **BENEFICIOS**

Si decide participar en este estudio es posible que no haya ningún beneficio directo para Ud. Sin embargo, se espera que la información juntada del estudio beneficiará al Marsing Resource Center

y la sociedad en general por proveer información que ayudará a profesores y otros para mejorar la manera en que se usa el internet en el aprender.

## **COSTOS Y COMPENSACIÓN**

No hay ningún componente físico en este estudio, entonces hay riesgo mínimo de herida física. Ud. no tendrá ningún costo de participar en este estudio. Tampoco no habrá ninguna compensación por participar en este estudio, aparte de saber que los resultados del estudio puede ayudar a los administradores del Marsing Center y otros mientras trabajan para mejorar el internet como recurso para la educación, el aprender, y en adquirir información necesaria.

## **DERECHOS DE LOS PARTICIPANTES**

Su participación en este estudio es completamente voluntaria y Ud. puede negar a participar o puede dejar el estudio en cualquier momento. Si Ud. decide no participar en el estudio o dejar el estudio temprano, tal decisión no resultará en ningún castigo o pérdida de los beneficios que ya son suyos.

## **CONFIDENCIALIDAD**

Los documentos que identifican a los participantes serán confidenciales hasta la extensión permitida por leyes y regulaciones aplicables, y los documentos no serán disponibles al público. Sin embargo, la National Science Foundation (el patrocinador del proyecto que provee el internet de velocidad rápida al Marsing Resource Center), y el Institutional Review Board (una comisión que repasa y aprueba los estudios de investigación de sujetos humanos) pueden examinar y/o copiar la información colectada para los propósitos de asegurar la calidad y análisis de datos. Estos documentos pueden incluir información privada sobre actitudes, opiniones, y experiencias presentadas, pero su nombre no será asociado con tal información.

Para asegurar la confidencialidad hasta la extensión permitida por la ley, se tomarán las siguientes medidas: (a) cada persona entrevistada será dada un código único que reemplazará su nombre (solamente el investigador sabrá el nombre asociado con el código único con propósito de una posible entrevista complementaria por teléfono); (b) solamente individuos asociados con el estudio y el American Distance Education Consortium (la agencia coordinadora para la National Science Foundation) tendrán acceso a los documentos del estudio. La información escrita a máquina se archivará en computadora y puede ser incluida como parte del sitio web del American Distance Education Consortium (<http://www.adec.edu/nsf/index.html>). Sin embargo, nunca se asociará ninguna persona entrevistada por nombre propio con cualquiera parte de la información archivada. Si se publican los resultados de este estudio o si se cita alguna información de una entrevista con el propósito de ilustración, su identidad permanecerá totalmente confidencial.

## **PREGUNTAS O PROBLEMAS**

Ud. está animado a hacer cualquiera pregunta durante este estudio. Para información adicional sobre el estudio, póngase en contacto con Dr. Roger Hiemstra (315-637-3527; 315-247-3730; [rogerhiemstra@hotmail.com](mailto:rogerhiemstra@hotmail.com)). Si desea hablar con alguien además del investigador, también puede ponerse en contacto con Darlyne Aleksich del Marsing Resource Center (208-896-5185) o Maureen Toomey, Extension Associate 4-H/Youth, Universidad de Idaho, State 4-H (208-454-7648).

Si Ud. tiene preguntas sobre los derechos de los sujetos de investigación o heridas asociadas con investigación, haga el favor de ponerse en contacto con el Institutional Review Board responsable para este estudio en Human Subjects Research Office (515-294-4566; austingr@iastate.edu) o el Research Compliance Officer, Office of Research Compliance (515-294-3115; dament@iastate.edu). Si Ud. tiene preguntas posteriormente, puede contactarse con Darlyne Aleksich, Roger Hiemstra, o Maureen Toomey por los números de teléfono o direcciones de correo electrónico arriba.

## **FIRMA DEL SUJETO**

Su firma indica que Ud. voluntariamente consiente en participar, que entiende los propósitos del estudio, y que fue dado el tiempo para leer este documento, y que cualquiera pregunta que tuviera fue contestada según su satisfacción. Ud. recibirá una copia firmada y fechada del formulario de consentimiento informado.

Su nombre (en letra ) \_\_\_\_\_

\_\_\_\_\_  
(Su firma)

\_\_\_\_\_  
(Fecha)

## **DECLARACIÓN DEL INVESTIGADOR**

Declaro que el participante fue dado tiempo suficiente para leer y aprender sobre el estudio y que todas sus preguntas fueron contestadas. Es mi opinión que el participante entiende el propósito, los riesgos, los beneficios, y los procedimientos que este estudio seguirá y el participante ha consentido voluntariamente en participar.

\_\_\_\_\_  
(Firma de la persona obteniendo consentimiento informado)

\_\_\_\_\_  
(Fecha)

## Example of An Initial Contact Letter of Explanation

June 30, 2003

Hello!

My name is Roger Hiemstra and I am a Senior Research Associate with the American Distance Education Consortium (ADEC). ADEC coordinates a research project entitled the Advanced Internet Satellite Extension Project (AISEP). This project is sponsored by the National Science Foundation, Washington, DC. The AISEP project is responsible for bringing high speed Internet connections to the Kettunen Center's (Tustin, Michigan) computers through a satellite dish.

My role is to gather some educational effectiveness information from current and past users of the computers. Understanding more about how people have used the computers, what kinds of information has been gathered, and what may have limited or promoted uses of the computers will help us do a better job in the future. Your support in our efforts will greatly benefit other users and it will be very much appreciated.

Thus, I would like to interview your child and obtain information regarding his or her opinions, experiences, and recommendations. I will be at the Kettunen Center July 9-11 to conduct interviews. Kettunen Center Staff Member, Andrea Grix, and Wexford County 4-H Agent, Dee Williams, will help coordinate and monitor the interview appointments. ADEC is committed to protecting youth and providing unanimity in the collection of data. We work with parents or guardians to ensure they are aware of our efforts. Therefore, please sign the attached permission form and have your child sign the one for youth, too, so we know you approve our research process. Provide the signed forms to Dee Williams, bring the documents yourself to the Kettunen Center, or have your child bring it to the Kettunen Center.

Thank you for your support in our efforts to improve the provision of Internet services at the Kettunen Center. If you have any questions, comments, or concerns, don't hesitate to contact me.

Sincerely yours,

Roger Hiemstra  
Senior Research Associate  
American Distance Education Consortium  
318 Southfield Dr.  
Fayetteville, NY 13066  
315-637-3527 (ph.)  
315-247-3730 (cell phone – used when traveling)  
rogerhiemstra@hotmail.com

**Appendix II**  
**Selected Words from Various Subjects on Their Internet Uses**

From an experienced 14 year old female in Michigan:

*I chat with people from different countries . . . just to check the movies*

From an experienced 15 year old female in Michigan:

*Sometimes I use it for my horoscope for fun,*

From a 29 year old experienced American Indian male in Michigan:

*Due to the fact that I am tribal, I do go periodically and check in there because I do a lot of stuff for the tribal - history and links that I like.*

From an experienced 13 year old black female in Michigan:

*I look up music. I look up music singers.*

From an experienced 12 year old male in Michigan:

*I play games, find codes for games*

From an experienced 17 year old female in Idaho:

*I go to a search and put down collecting stamps and it gives me all these Web sites to go to and then I pick one and then I find what I'm looking for I just look at what they have. I usually go to a stamps online and they tell me the release schedules, so I check that out mostly.*

From an experienced 47 year old female in Idaho:

*Well, I do more searching things out like, I don't know, health issues, vitamins,*

From an experienced 40-59 year old female in Idaho:

*I also book reservations for hotels for family vacations on the Internet.*

From an experienced 59 year old male in Idaho:

*On my favorite bar I got Winchester, I like guns, so Winchester had a site that you can find out and you can plug the serial numbers of Winchesters and they'll tell you date the gun was manufactured and things like that and that's interesting.*

From an experienced 40-59 year old female in Idaho:

*Hotels, when we go on vacation, for best pricing. E-mail. Vacation town sites.*

From an experienced 11 year old female in Idaho:

*Sometimes I play the Oregon Trail with some of my friends that are also at the resource center. You're a pioneer on the computer game and you set up an independence, you choose which people you want to be with you and who is going to be the leader and how many people you want and what size wagon. You have to buy animals and food and supplies and then when you leave you choose the wagon train you want to go with, you get three choices.*

From an experienced 55 year old female in Idaho:

*I am in the Iris Club, so I got and look at the Web site for irises. Yes, and maybe some auctions, local auctions.*

From a beginning 11 year old Hispanic male user in Idaho:

*You go on the Internet and type newcars.com and they'll take you to the new cars that they have.*

From an experienced 30-39 year old male in Idaho:

*Netscape for medical information. I've gone to ancestry.com for genealogical research.*

From an experienced 30-39 year old female in Idaho:

*Employment, to research medical history . . . All kinds of things. I use it for everything. You've got to learn how to do it. I looked up information on old boats*

From an experienced 40-59 year old female in Idaho:

*When we do a lot of traveling, I make a lot of the reservations. I've even made the reservations for overseas on the internet which was wonderful.*

From an experienced 60+ year old female in Idaho:

*I want to look at something about gardening.*

From another experienced 60+ year old female in Idaho:

*Well, one way is just to look at foundations and then you can get onto foundations and they'll list a few and you just take a few that sound kind of interesting, hit on those until you get further information.*

### **Appendix III**

#### **Web Sites Visited**

Code: A = Adult      W = White      E = Experienced User  
Y = Youth      B = Black      I = Inexperienced User  
F = Female      H = Hispanic  
M = Male      A-I = American Indian

1. abcnews.go.com/ – ABC News site (1A/F/W/E)
2. alaskaair.com/ – Various air travel-related information and purchase choices (1A/F/W/E)
3. altavista.com/ – A search engine (1Y/F/B/E)
4. amazon.com/ – A media purchasing site (1Y/F/W/E)
5. ancestry.com/ – A variety of genealogy records and information (1A/M/W/E)
6. aol.com/ – Used by members for searching (2A/1F & 1M/2W/1E & II)
7. arcadepod.com/ – An online game site (1Y/F/B/E)
8. ask.com/ – Also known as Ask Jeeves, it is a search engine (7Y & 2A/3M & 6F/7W, 1H, & 1B/8E & 1I)
9. askaboutit.com/ – A search engine (it now appears to be defunct) (1Y/F/W/E)
10. att.com/ – Information about and related to AT&T (1A/F/W/E)
11. bet.com/ – News and information in support of the BET network (1Y/M/H/E)
12. blade.com/ – A search directory on knives, blades, and various other topics (1Y/M/W/I)
13. boisestate.edu/distance/ - A distance education support site for Boise State University (2A/F/W/E)
14. bolt.com/ – A site for teens with music, discussion, gaming, etc. (1Y/F/W/I)
15. bonus.com/ – A site providing various information on curriculum, homework, and other topics for youth (3Y/1M & 2F/2W & 1H/3E)
16. boatnerd.com/ – A variety of information on Great Lakes and seaway shipping (1Y/F/W/I)
17. bored.com/ – A site with various things a person could do (1Y/F/W/E)
18. cancer.com/ – An information site related to cancer (1A/M/W/I)
19. captaincode.com/ – A site with hints, tips, tricks and cheat codes for various games (1Y/M/H/E)

20. [cartoonnetwork.com/](http://cartoonnetwork.com/) – Various options related to cartoons (6Y/4M & 2F/2W & 4H/4E & 2I)
21. [cheatcodes.com/](http://cheatcodes.com/) – A site with hints, tips, tricks and cheat codes for various games (1Y/M/W/E)
22. [cheatingdome.com/](http://cheatingdome.com/) – A huge archive on cheats, hints, and tricks for various games (3Y/3M/1W & 2H/2E & 1I)
23. [christianbook.com/](http://christianbook.com/) – Information about and purchasing Christian-oriented books (1A/F/W/E)
24. [coffebreakarcade.com/index.html](http://coffebreakarcade.com/index.html) – A site with all kinds of online games (3Y & 1A/4M/1W & 3H/3E & 1I)
25. [comics.com/](http://comics.com/) – A site containing various daily coming strips (1Y/F/W/E)
26. [coolmath.com/](http://coolmath.com/) – An amusement park of math designed for fun (1Y/F/W/E)
27. [crisco.com/](http://crisco.com/) – Cooking information, recipes, and tips for using Crisco (1A/F/W/E)
28. [debatecomics.org/the\\_white\\_rose.asp](http://debatecomics.org/the_white_rose.asp) – controversial debates in a balanced format to promote critical thinking in teens (1Y/F/W/E)
29. [dir.yahoo.com/Recreation/Games/Board\\_Games/](http://dir.yahoo.com/Recreation/Games/Board_Games/) – An online game board site (1A/M/W/E)
30. [disney.go.com/disneychannel/](http://disney.go.com/disneychannel/) – Various informational choices in support of the Disney Channel (2Y/F/W/1E & 1I)
31. [dogpile.com/](http://dogpile.com/) – A search engine (1A/F/W/E)
32. [dressupgames.com/kids.html](http://dressupgames.com/kids.html) – Used for dress up games and other games (1Y/F/W/I)
33. [ebay.com/](http://ebay.com/) – A large online shopping and bidding site (1A/M/W/E)
34. [edtego.com/](http://edtego.com/) – An online course site (1A/F/W/E)
35. [expedia.com/](http://expedia.com/) – Various travel-related information and purchase choices (2A/F/W/E)
36. [foxnews.com/](http://foxnews.com/) – Fox News site (1A/F/W/E)
37. [gamerival.com/](http://gamerival.com/) – An online game site (1A/F/B/E)
38. [games.yahoo.com/](http://games.yahoo.com/) – An online games site (1A/M/W/E)
39. [gardenwatchdog.com/W/1418/](http://gardenwatchdog.com/W/1418/) – One of several leading to Superstition Iris Gardens (1A/F/W/E)
40. [geocities.com/SouthBeach/Pointe/8225/jumblebee.html](http://geocities.com/SouthBeach/Pointe/8225/jumblebee.html) – Called JumbleBee, it is a chat and online games site (1Y/F/W/E)
41. [google.com/](http://google.com/) – A search engine (12Y & 7A/5M & 14F/15W, 2H, 1B, & 1A-I/18E & 1I)

42. [google.com/grphp?hl=en&tab=wg&ie=UTF-8](http://google.com/grphp?hl=en&tab=wg&ie=UTF-8) – Discussion groups on various topics via Google (1A/M/W/E)
43. [groups.yahoo.com/](http://groups.yahoo.com/) – Discussion groups on various topics via Yahoo (1A/M/W/E)
44. [homeworkspot.com/](http://homeworkspot.com/) – A homework help site (1Y/F/W/E)
45. [hotmail.com/](http://hotmail.com/) – An email provider (8Y/2M & 6F/5W & 3H/7E & 1I)
46. [idahostatesman.com/apps/pbcs.dll/frontpage](http://idahostatesman.com/apps/pbcs.dll/frontpage) – Online version of the newspaper (1A/F/W/I)
47. [incredimail.com/english/splash.html](http://incredimail.com/english/splash.html) – A site for enhancing email in various ways (1Y/F/W/E)
48. [irises.org/storefront.htm](http://irises.org/storefront.htm) – A site for purchasing iris related items (1A/F/W/E)
49. [irs.com/](http://irs.com/) – A site with a variety of information related to taxes (1A/M/W/E)
50. [iwin.com/iwin/index.jsp](http://iwin.com/iwin/index.jsp) – A large game site (1Y/F/W/E)
51. [kiddonet.com/](http://kiddonet.com/) – Provides an Internet environment for children 7-12 to create, learn, play, and communicate safely (1Y/F/H/E)
52. [launch.yahoo.com/](http://launch.yahoo.com/) – A music download site (2Y/F/W/1E & 1I)
53. [lyrics.com/](http://lyrics.com/) – A music download site (1Y/F/B/E)
54. [mamma.com/](http://mamma.com/) – Listed as the Mother of all search engines (1Y & 1A/M/1W & 1H/1E & 1I)
55. [math.com/](http://math.com/) – Various types of helpful information on numerous math topics (1Y/F/H/I)
56. [microwarehouse.co.uk/](http://microwarehouse.co.uk/) – On-line Computer Products Company (1A/F/W/E)
57. [morningstar.com/](http://morningstar.com/) – A finance site (1A/F/W/E)
58. [msnbc.msn.com/](http://msnbc.msn.com/) – An online news service (1A/F/W/E)
59. [msnbc.msn.com/id/3032600/](http://msnbc.msn.com/id/3032600/) – An online news service related to Dateline NBC (1A/F/W/E)
60. [mtv.com/](http://mtv.com/) – A site in support of the MTV network (3Y/3M/1W & 2H/2E & 1I)
61. [neopets.com/](http://neopets.com/) – A Virtual Pet Site (includes neomail and neofriends) (5Y/2M & 3F/2W & 3H/4E & 1I)
62. [newcars.com/](http://newcars.com/) – Provides price quotes for a variety of automobiles (1Y & 1A/1M & 1F/1W & 1H/1E & 1I)
63. [nick.com/](http://nick.com/) – Related to various kid's shows (1Y/F/W/E)

64. [nickelodeon.com/](http://nickelodeon.com/) – Similar to [nick.com](http://nick.com/); also available from various countries (1Y/F/W/I)
65. [nytimes.com/](http://nytimes.com/) – Online version of the newspaper (1A/M/W/E)
66. [orbitz.com/](http://orbitz.com/) – Various travel-related information and purchase choices (2A/F/W/E)
67. [psc.disney.go.com/disneychannel/lizziemcguire/style/manicuranda.html](http://psc.disney.go.com/disneychannel/lizziemcguire/style/manicuranda.html) – Use to give Miranda a manicure (1Y/F/W/I)
68. [riverview-iris-gardens.com/](http://riverview-iris-gardens.com/) – A site for purchasing iris bulbs (1A/F/W/E)
69. [runescape.com/](http://runescape.com/) – An adventure game site (1Y/M/W/E)
70. [search.msn.com/](http://search.msn.com/) – Microsoft’s internet explorer search engine (3Y & 4A/3M & 4F/4W, 2H, & 1B/6E & 1I)
71. [shockwave.com/sw/home/](http://shockwave.com/sw/home/) – A site with all kinds of online games (5Y/4M & 1F/1W & 4H/4E & 1I)
72. [snoopdog.com/](http://snoopdog.com/) – A search directory (3Y/M/H/E)
73. [southwest.com/](http://southwest.com/) – Various air travel-related information choices (1A/F/W/E)
74. [sparknotes.com/](http://sparknotes.com/) – A Barnes & Nobel site with study guides on various topics (1Y/F/W/E)
75. [target.com/](http://target.com/) – The Target store web site (1A/F/W/E)
76. [techtv.com/screensavers/index.html/](http://techtv.com/screensavers/index.html/) – A web site about a TV show that helps users discover the ins and outs of technology (1A/M/A-I/E)
77. [travelocity.com/](http://travelocity.com/) – Various travel-related information choices (1A/F/W/E)
78. [tripod.lycos.com/](http://tripod.lycos.com/) – Help for building a web site (1A/M/W/E)
79. [webquest/](http://webquest/) – There are several sites offering webquest activities, investigative projects that guide students through various steps to reach a goal (4Y/1M & 3F/3W & 1H/4E)
80. [weightwatchers.com/index.aspx](http://weightwatchers.com/index.aspx) – Weight Watchers International site (1A/F/W/E)
81. [winchester.com/](http://winchester.com/) – Winchester Ammunition Company (1A/M/W/I)
82. [www21.pogo.com/home/home.jsp?sls=2&site=pogo](http://www21.pogo.com/home/home.jsp?sls=2&site=pogo) – Known as Pogo, it is a family game site (4Y & 1A/4M & 1F/5W/4E & 1I)
83. [www2.warnerbros.com/main/homepage/homepage.html](http://www2.warnerbros.com/main/homepage/homepage.html) – Various links related to the Warner Brothers Studios, games, music, etc. (1Y/M/H/I)

84. [yahoo.com/](http://yahoo.com/) – A site with lots of information categories; it also can be used for searching and for email (10 Y & 5A/6M & 9F/11W, 2H, 1B, & 1 A-I/15E)
85. [yahooligans.yahoo.com/](http://yahooligans.yahoo.com/) – A web guide for youth on various topics (2Y/1M & 1F/1W & 1H/2E)
86. [zone.msn.com/en/root/default.htm](http://zone.msn.com/en/root/default.htm) – An online game site (1Y/M/W/E)
87. [3fatchicks.com/diet-toolbox/diet-plans/atkins.html](http://3fatchicks.com/diet-toolbox/diet-plans/atkins.html) – Dieting information (1A/F/W/I)