

# CENTRAL OREGON HOUSEHOLD TELECOMMUNICATIONS SURVEY, SUMMER 1999

## Methodology and Results

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## INTRODUCTION

As one part of a continuing effort to better serve the needs of Central Oregon residents and organizations, the Central Oregon Telecommunications Task Force (COTEL) contracted with the Oregon Survey Research Laboratory (OSRL) to conduct a representative survey of households on a variety of telecommunications issues. A random-digit-dial (RDD) telephone survey of 413 households was conducted in August 1999. This report summarizes the survey methodology and results.

Funding for this project was generously provided by the Economic Development Administration (EDA) and a grant from the Oregon State Lottery, administered by State of Oregon Economic Development Department.

## SURVEY METHODOLOGY

### SURVEY INSTRUMENT

The survey's goal was to obtain statistically valid and reliable information from Central Oregon households about telecommunications-related behaviors, plans, needs, knowledge, and attitudes.

Survey questions were developed by OSRL in close consultation with COTEL representatives. Some questions replicate those in other surveys conducted previously by OSRL, to allow comparison, but many questions were OSRL originals.

The survey instrument was pretested using OSRL's standard three-pronged pretest procedure. This involves (a) potential members of the survey population, (b) OSRL's Questionnaire

Review Committee, comprised of survey experts from our staff and university-wide advisory committee, and (c) potential users of the data at UO. Individual questions were pretested for clarity, accuracy, validity, and variability of response. The entire instrument was pretested for flow, length, comprehensiveness, and factors which affect respondents' cooperation and attention. Based on these pretests, the survey instrument was revised and finalized, programmed into OSRL's computer-aided telephone interviewing system (CATI), and then tested again.

The telephone survey instrument comprised the following specific topics:

1. Household computers, including Internet, World Wide Web, and email connections, Internet Service Provider (ISP), quality and cost of Internet service, hours per day of Internet connection, and household members who use the Internet connection;
2. Household modems, including type, speed, upgrade plans, and knowledge of cable modems;
3. The Oregon Benchmark question on computer skill;
4. For households not connected to the Internet or World Wide Web, reasons why;
5. Access to the Internet and World Wide Web through employer or volunteer work and frequency of use at work;
6. Access to the Internet and World Wide Web in public places, frequency of use, and place most used;
7. Frequency of use of the World Wide Web for purchasing;
8. Use or interest in use of the World Wide Web for shopping (groceries, household goods, clothes, and motor vehicles), registering motor vehicles, making travel arrangements, filing tax returns and getting financial information, registering for college classes, taking classes, learning new skills or on-the-job training, entertainment, getting public information, reserving tickets, obtaining medical information, and learning to create WWW pages;
9. Security concerns, including security of buying things, email privacy, and children finding things they should not;
10. Best and worst things about the World Wide Web in open-ended narratives;
11. Household televisions, including ownership, cable service, and wireless cable;
12. Household telephone provider, quality of service, open-ended question on how telephone service could be improved, number of telephone lines, plans to add an additional line, cell phones, computer-dedicated lines, home business-dedicated lines, voice mail service, call waiting, caller ID, an 800 number, ability to send faxes, pagers, and monthly cost;
13. Knowledge questions about cable modems, use of the Internet for long-distance phone calls, and digital subscriber lines;
14. Demographic and background questions, including age, sex, race/ethnicity, home ownership, education, employment, the ability to telecommute to jobs, home business, zip code, and household income.

## SAMPLING

This study used a random-digit dial (RDD) sampling procedure. OSRL employs the Genesys Sampling System, the same used by the U.S. Census Bureau for its large-scale RDD surveys. The Genesys procedure employs an RDD algorithm that is used in conjunction with our CATI system. Sampling is pre-programmed and accomplished without interviewer intervention. This system avoids biases encountered from telephone books and similar lists; that is, new and unlisted telephone numbers have an equal chance of being selected as established numbers. Telephone numbers are generated randomly by the computer and appear automatically on interviewers' computer screens.

Altogether, 1,500 telephone numbers were randomly generated. Of those, 777 (52%) were disconnected, non-working, nonresidential, fax/modem lines, or otherwise ineligible for the study. For another 189 telephone numbers (13%), the status could not be determined (e.g., the numbers were continuously busy, or no one ever answered). From the remaining 534 telephone numbers, 413 interviews were completed. In a few instances, adults who answered the survey did not know the answers to technical computer questions, and they voluntarily handed the telephone over to a teenage household member. Altogether, 9,018 dial attempts were made for this survey. Up to 35 calls were made to each valid telephone number.

The net CASRO response rate was 66% and the refusal rate was 17%.<sup>1</sup> A complete sample and response rate report is provided in another section of the final report. The telephone interviews' average length was 12.3 minutes. All interviews were conducted in English.

Sampling error for this RDD sample size of 413 is moderate. Survey sampling errors are calculated to assist data users in assessing how much confidence to place in a particular survey result. Moderately large random samples, as in this study, reduce sampling error. Survey question results in which there is low variability also have less sampling error; e.g., a variable with a 50/50 proportional split has wider confidence intervals than a variable with a 5/95 proportional split. For this study of 401, the confidence interval is  $\pm 4.9$  percentage points on variables with a 45/55 proportional split (at the 95% confidence level). This means analysts can be 95% sure that the true population figure is between 45.1% and 54.9% (i.e.,  $50\% \pm 4.9$  percentage points). For variables with a 5/95 proportional split, the confidence interval is 2.1, which means analysts can be 95% sure that the true population figure is between 92.9% and 97.1% (i.e.,  $95\% \pm 2.1$  percentage points). For more details, see OSRL's "Sampler" at <http://darkwing.uoregon.edu/~osrl/miscpapers/sampler.html>.

## DATA COLLECTION

Interviewer training was conducted on August 4, 1999. Interviewer instructions are provided elsewhere in the final report. Interviewing was conducted at all times of the day between

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<sup>1</sup> CASRO = Council of American Survey Research Organizations. CASRO response rates, the most rigorous industry standard, are calculated in following manner. Completed interview / (Eligible sample + ((Eligible sample / (Eligible sample + Ineligible sample)) \* Sample with unknown status)). Source: Robert M. Groves, *Survey Errors and Survey Costs*, 1989.

Thursday, August 5th and Saturday, August 28th until the target sample size of completed interviews was achieved.

A screening question ensured that all survey respondents resided in Crook, Deschutes, and Jefferson Counties. All households in the geographic area had an equal chance of being selected, excluding those without telephones. The surveys were completely anonymous. Human subjects approval was obtained from the University's Committee for the Protection of Human Subjects.

The "Central Oregon Household Telecommunications Survey" was conducted with the use of OSRL's computer-aided telephone interviewing system (CATI). In the CATI system, sampling, interviewing and data entry is accomplished interactively and seamlessly. The programmed survey instrument contains all survey questions, interviewer probes for consistency, and pre-coded answer categories. Skip logic is programmed into the system, preventing inappropriate or incorrect questions from being asked.

In administering the survey, trained interviewers use telephone headsets in sound-reduced carrels at computer workstations connected by an NT network. Randomly distributed telephone numbers appear automatically at each workstation and are mated to pre-programmed survey instruments. Telephone calls are placed with a computer keystroke, preventing dialing errors. As respondents answer questions, interviewers enter the data into the CATI data file. Telephone numbers are automatically stripped from the interview data to ensure confidentiality. The CATI system eliminates out-of-range responses and wild codes by validating each response interactively and not allowing inappropriate responses to be entered. Thus, the CATI system eliminates many routine and error-prone coding and data entry tasks and enables OSRL to maintain the highest standards of quality control.

## **SURVEY RESULTS**

The results section of this report is organized into 10 parts. Part 1 summarizes the demographic and background characteristics of survey respondents, to provide context for the substantive results. Part 2 presents various aspects of computer ownership, Internet and World Wide Web access, household use, Internet Service Providers, and service quality. Part 2 also summarizes why some respondents do not have Internet and World Wide Web access. Part 3 covers home modems. Part 4 provides information on respondents' computer skills and desire to learn more. Part 5 summarizes respondents' on-the-job Internet and World Wide Web access, while Part 6 presents respondents' use of public computers to access the Internet and World Wide Web. Part 7 summarizes the results of many questions concerning respondents' use of the World Wide Web, their interest in learning how to use it, and their lack of interest. Part 8 addresses respondents' security concerns about the Internet and World Wide Web. Part 9 presents details on respondents' households' television and cable service. Finally, Part 10 discusses respondents' telephone service, including the number of lines they have, cell phones, service quality, the special telephone devices and services they have, how much they pay, and their knowledge about new services.

## 1: DEMOGRAPHIC AND HOUSEHOLD CHARACTERISTICS

For context, this section briefly describes survey respondents' demographic attributes (county of residence, age, sex, race/ethnicity, education, employment, telecommuting) and household characteristics (size, number of children, home ownership, home business, household income). Twelve respondents skipped these questions and are excluded from the numbers below.

*County of Residence:* Seventy-eight percent of respondents lived in Jefferson County, 15% in Crook County, and 7% in Jefferson County. This is a good representation of the populations of these three counties.<sup>2</sup>

*Age:* The median age of survey respondents was 43. Teenagers comprised 4% of the sample, those ages 20-29 18%, ages 30-39 18%, ages 40-49 22%, ages 50-59 16%, ages 60-69 10%, ages 70-79 8%, and ages 80-87 2%. Two percent refused to answer.

*Sex:* Men comprised 41% of survey respondents, and women comprised 59%.

*Race/Ethnicity:* Non-Hispanic Whites constituted 94.5% of respondents. Other races were American Indians 2.5%, Hispanic 2.0%, Asians/Pacific Islanders 0.5%, Blacks 0%, mixed race 0% and 0.5% refused to answer.

*Education:* Respondents' modal level of educational attainment was "some college, no degree" at 29%. Those who had completed a high school diploma or GED comprised 27%, and those who did not complete high school were 7%. Eight percent completed an Associates degree, 21% a bachelors degree, and 6% a masters degree or higher.

*Employment:* Sixty-eight percent of the sample were employed, 19% retired, 6% homemakers, 2% disabled, and the remaining 5% were distributed across the categories of student, unemployed and looking for work, and volunteer worker.

*Telecommuting:* Of those employed for pay, 33% said that they could "telecommute from home to work ((for example) if [they] had a sick child, the weather was bad, or if [they] needed a stretch of uninterrupted time to complete a special project)." Sixty-one percent could not telecommute, and 5% volunteered that their job duties, by definition, do not allow telecommuting.

*Household Size:* Household size ranged from 1 to 10 persons, with 18% of respondents in single-person households, 38% in 2-person households, 13% in 3-person households, 17% in 4-person households, 8% in 5-person households, and 5% in 6- to 10-person households.

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<sup>2</sup> As of December 1998, Portland State University's Center for Population Research and Census estimated Deschutes County at a population of 104,900 (75%), Crook County at 16,650 (12%), and Jefferson County at 17,400 (13%) (see <http://www.upa.pdx.edu/CPRC/Final98.PDF>). But Jefferson County is known for its low telephone subscription rates – just 85% in the 1990 Census.

*Number of Children in Home:* Fully 62% of respondents' households had no children, 12% had 1 child, 15% had 2 children, 7% had 3 children, 2% had 4 children, and 1% had 5 children.

*Home Ownership:* Seventy-four percent of respondents owned their own homes (or were buying homes with mortgages), while 24% rented and 1% volunteered "something else," such as an exchange relationship.

*Home Business:* Of those employed (n = 273), 31% reported that they or someone else operate a business from their home.

*Household Income:* Just 7% of respondents' households earned incomes less than \$15,000 per year (roughly poverty level), 9% earned \$15,000-\$25,000, 17% earned \$25,000-\$35,000, 23% earned \$35,000-\$50,000 (the median category), 15% earned \$50,000-\$75,000, and 15% earned over \$75,000 per year.<sup>3</sup> Fourteen percent refused to answer. Crook County residents were distinctly poorer, with 25% earning less than \$25,000 per year.

## 2: HOME COMPUTERS

This section examines several dimensions of home computers, including ownership, World Wide Web (WWW) access, Internet service providers, and Internet use. Results for modems are provided in the next section.

*Computer Ownership:* Sixty percent of respondents to this survey said that they had a personal computer in the home (see Figure 1). But this varied widely. Just 43% of Jefferson County residents had a home computer, 53% of Crook County residents, and 54% of Deschutes County residents. Computer ownership increases steadily with household income, from 29% of household earning less than \$15,000 per year, to 91% of households earning \$75,000 or more. Computer ownership also increases with the number of persons in the household, from 38% of one-person households to roughly 70% of households with 3 or more persons. Computer ownership is more common in households with children (70% compared to 56% of households without children), in households with home businesses (83% compared to 58% of households without home businesses), and among homeowners (68%, compared to 41% of renters). Computer ownership is also more common among whites than nonwhites.

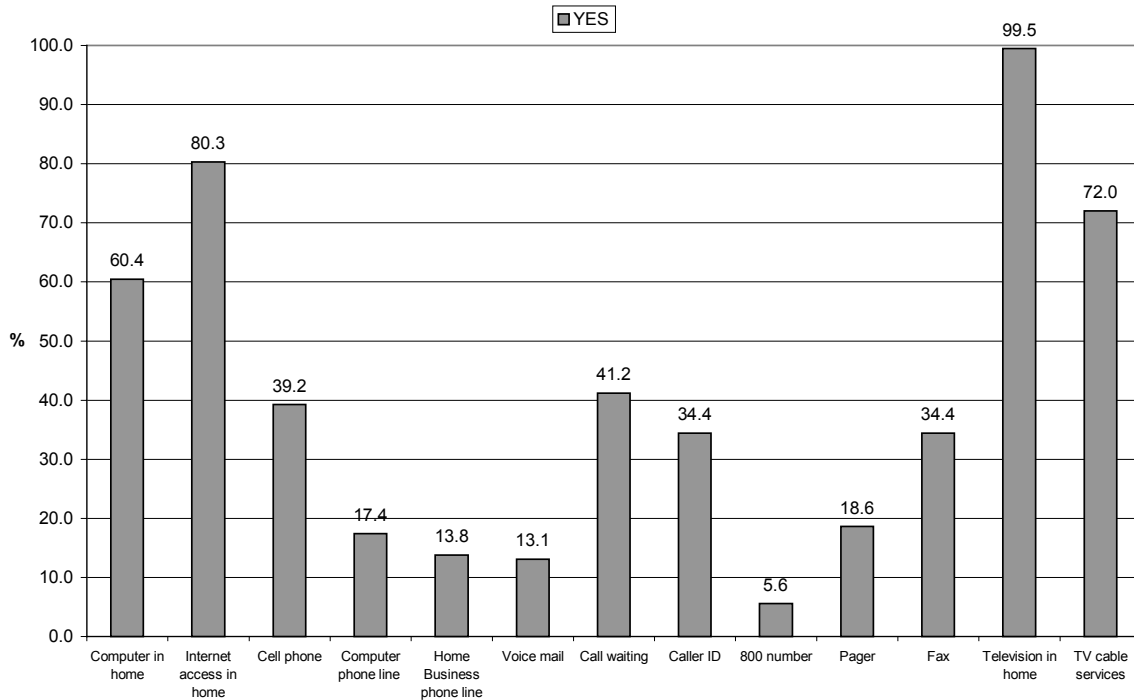
*Internet and WWW Access:* Among households with computers, 79% "Can you use [their] home computer for electronic mail or to connect to the World Wide Web or the Internet." Nineteen percent cannot, and 2% can connect but have never done so. As with computer ownership, Internet access varies widely. Of Jefferson County residents, 62% can connect to the Internet from home, compared to 75% of Crook County residents and 80% of Deschutes County residents. Internet access does not vary neatly with household income, household size or home ownership. Homes with children are slightly less likely to have Internet access (76%

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<sup>3</sup> Note: In order to reduce nonresponse, the survey questions related to income are a series of yes/no contingency questions, asking if respondents' household incomes are "above or below \$xx,000. This technique results in answer categories that are not precisely mutually exclusive (e.g., \$25,000 appears in two answer categories). In OSRL's experience, however, far fewer respondents refuse to answer when the questions are asked in this way. Thus, the reduced nonresponse outweighs the lack of specificity in answer category boundaries.

compared to 81% of homes without children), while homes with business are slightly more likely to have access (84% compared to 81%). Whites are more likely to have Internet access than nonwhites.

**Figure 1: Telecommunication Devices Respondents Have**



*Internet Service Providers (ISP):* The major ISP for the sample was America Online (AOL), with 29% of respondents. BendNet provided Internet access to 17%, and 20% received Internet access from “other.” Several smaller ISPs were Bend Cable 7% of respondents, Central Oregon Internet (COINET) 7%, EmpireNet 5%, Transport Logic 4%, and OutlawNet 3%. Just 1-2 persons each subscribed to Compuserve, Eagleslair, Palmain Communications, UniCom, and 4 got their Internet service through their work or college. Zero subscribed to Crestview Cable, MadrasNet, MtJeffNet, MCI or MSN. The poorest households subscribed through “other,” and we suspect they use free ISPs, such as HotMail.

Asked to evaluate the quality of their Internet service, 26% said it was “excellent,” 51% “good,” 18% “fair,” and 2% said “poor.” In open-ended questions, respondents were asked: “If there is one thing you could change or improve about your Internet service, what would it be?” This was programmed in CATI so that the answers of those who answered “excellent” or “good” are separated from those who said “fair” or “poor.” In order to save money on this study, open-ended answers were not coded. But the narratives are provided in another section of this report.

The monthly cost of Internet service to respondents, excluding telephone costs, ranges from zero to \$200. The median is \$20 per month. Twelve percent don’t know the cost of their Internet service.

*Internet and WWW Hours per Day:* Hours per day that someone in respondents' households is connected to the Internet range from zero to 24 hours, with a median of one hour. One quarter are connected for an average of zero hours per day, 36% for one hour, 19% for 2 hours, 16% for 3-5 hours, and 3% for 6-24 hours.

*Internet and WWW Users in Households:* Each respondent was asked if four age groups of household members use their home computer to connect to the Internet or WWW. Of the 196 households with access, 88% said adults age 30 and over in their home use it, 24% said that young adults ages 18-29 use it, 21% said that teenagers use it, and just 13% said that pre-teenagers or younger children used their home's Internet access.

*Why No Internet or WWW Access?* Households with computers but without Internet or WWW access were asked why they do not have such access in their homes. The modal answer was "other" at 36%; respondents' narrative "other" answers are provided in another section of this report. Seventeen percent reported that they "see no value" or "are not interested." Fifteen percent don't subscribe because it is too expensive. Nine percent said that they do not have the skills to set up Internet access in their homes or to know how to use it once it is set up. Eight percent expressed fears related to children's access to things they should not see. Another 8% said they did not need access at home because they have it at work; but in another part of the survey, 39% said they could access the Internet or WWW on the job.

Although the numbers are small, disproportionately more residents of Jefferson County cited lack of interest as the reason they don't have Internet access at home; disproportionately more respondents in the \$50-\$75,000 household income range cited cost; disproportionately more who have home businesses reported lack of skill; and only parents cited fears related to things children may see on the WWW.

### 3: HOME MODEMS

*Modem Type:* Of those respondents who can connect to the WWW or Internet, 85% use a telephone dial-up modem, 10% use a cable modem, 5% don't know, and none have a T1/DSL direct network connection. Cable modems are more common for wealthy respondents: one-fifth of those who earn \$75,000 or more per year have cable modems - twice as much as the general sample. Cable modems are also more common in households with home businesses: 16% of households with home businesses have cable modems, compared to 8% of those without home businesses.

*Heard of Cable Modems Before:* Of those with telephone modems, 35% had never heard of cable modems before this survey. Those least likely to have heard of cable modems are: residents of Crook County (55% never heard of cable modems), residents of Jefferson County (63%), respondents who live alone (50%) or with just one other person (43%), and respondents without children in the home (41%).



*Modem Speed:* Of those with telephone modems, their speed is 56K for 41%, 28.8K for 15%, and 14.4K for 2%. Thirty-nine percent did not know their telephone modems' speed and 4% reported an "other" speed. The best predictor of modem speed is household income: as household income increases, so does modem speed (e.g., just 60% of those earning less than \$25,000 have 56K modems, compared to 79% of those earning over \$75,000). Households with home businesses also more often have high-speed modems (75% of households with home businesses have 56K modems compared to 63% of those without home businesses).

*Upgrading Plans:* Within the 12 months following the survey, 20% plan to upgrade their home modems to connect to the WWW or Internet. Those most likely to plan to upgrade their home modems are residents of Jefferson County (38% plan upgrades); those with middle incomes; childless households (23%, compared to 17% of households with children); renters (41%, compared to 16% of homeowners); and households with 1-2 telephone lines (26%, compared to just 13% of those with 3 or more telephone lines).

#### 4: COMPUTER SKILLS

Whether they have a home computer or not, all respondents were asked the basic Oregon Benchmark question about computer skill: "Do you know how to use a computer to create or edit documents or graphics, or to analyze data?" Fifty-eight percent said "yes," 11% volunteered "yes, a little," and 31% said "no."<sup>4</sup>

Computer skills vary substantially, however, across sample subgroups. For example, 53% of Crook County respondents have no computer skills and 47% of Jefferson County respondents have no computer skills, compared to just 26% of those in Deschutes County. Computer skill also varies with household income: 44%-54% of persons in the lowest household income categories have no computer skills, compared to just 13% of those in the highest income category. Respondents who live alone more often have no computer skills (45%, compared to 23-30% of those with 2 or more persons in their household). Households with children more often have computer skills than childless households (67%, compared to 53%). Households with home businesses more often have computer skills than those without businesses (71%, compared to 65%). Respondents with a computer in the home are much more likely to have computer skills (70%, compared to just 39% of those without computers in the home).

Even if they had basic computer skills, all respondents were asked how important it was to them to "become more skilled with computers." Nearly one-third, 32%, said "very important," 38% said "somewhat important," 14% "not very important," and 15% said "not at all important." But those with the lowest computer skill levels were not necessarily the ones who thought it most important to improve them. For example, respondents without computers in the home were less interested in becoming more skilled with computers; 50% are not interested. In comparison, just 16% of those with computers in the home are not interested. Of those in households earning less than \$25,000, 38% said it was "not at all important" to them to become more skilled with computers, and 29% of respondents in single-person households said the same. Forty percent of Jefferson County respondents thought it "very important" that they become more skilled. Nearly all of this survey's minority

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<sup>4</sup> Comparative data for the entire state should be available from the Oregon Progress Board.

respondents felt it important that they gain more computer skills. Respondents with children in the home and those with home businesses more often said it was important for them to learn more computer skills than those without children and without home businesses.

#### 5: ON-THE-JOB INTERNET AND WORLD WIDE WEB ACCESS

Respondents were asked: “Do you have a job, or do you do volunteer work, that makes it possible for you to access the Internet and World Wide Web?” Thirty-nine percent said “yes” and 60% said “no.” At this point, four respondents volunteered that they had never heard of the Internet or WWW and they were skipped to the television questions.

Only 20% of Jefferson County respondents have access to the Internet and World Wide Web through their work, compared to 36% in Crook County, and 41% in Deschutes County. Household income correlates directly with access, from 14% of those with household incomes less than \$15,000 per year to 69% of those with household incomes of more than \$75,000. Respondents with Internet access at work were more likely to have home computers: 71% of those with Internet access at work have home computers, compared to 54% of those without Internet access at work. In addition, respondents with Internet access at work were much more likely to have Internet access at home: 61% of those with Internet access at work have Internet access at home, compared to 40% of those without Internet access at work.

The 159 respondents who have access on the job were asked how often they use computers on the job or in volunteer work to connect to the Internet and WWW. Forty-five percent said “every day,” 13% said “several days per week,” 14% said “once per week,” 19% said “less than once per week,” and 9% volunteered “never.” Those with home computers and home Internet access use their workplace Internet access more frequently than those without home facilities.

#### 6: PUBLIC INTERNET AND WORLD WIDE WEB ACCESS

Computers in public places, such as libraries, schools, college campuses, hospitals, stores, malls and airports, are “often” used to connect to the Internet and WWW by only 4% of this survey’s respondents. Nine percent use public computers for these purposes “sometimes,” 18% “rarely,” and 68% “never.” Jefferson and Crook County respondents were less likely to use public computer for WWW access than Deschutes County respondents. Those in the \$15-\$25,000 household income range and those in the over \$75,000 range were somewhat more likely to “often” use public computers, at 8%. Respondents with home computers were very slightly more likely to use computers in public places: 32% of those with home computers use public computers, compared to just 31% of those without home computers, and those with home computers also use public computers slightly more frequently.

The 54 respondents who use public computers to connect to the Internet and WWW do so most often at a library, 57%, or at a school or college (33%). One person accessed the Internet or WWW at a store or mall, zero did so at a hospital or airport computer, but 4 respondents did so “someplace else.” Respondents without home computers more often use library computers (78%, compared to 43% of those with home computers), and respondents

without home Internet access more often use library computers (57%, compared to 36% of those with home Internet access.).

#### 7: USES OF THE WORLD WIDE WEB

To begin the series of questions on how respondents use the WWW, they were asked how often they buy things on it. Seventy-two percent said “never,” 14% said “rarely,” 11% “sometimes,” and 3% “often.” Of the 12 people who said “often,” 11 live in Deschutes County. Fully 86% of those in Jefferson County and 84% of those in Crook County said “never.”

The next series of 14 questions asked about detailed ways in which respondents use, or might use, the WWW. Specifically, respondents were asked if have used the World Wide Web for this purpose already, if they would like to be able to use it for this purpose, or if they were not interested in using the World Wide Web for this purpose. Figure 2 summarizes these results. At this point, 6 additional respondents said that they had never heard of the WWW or Internet, and they were skipped to the television questions (i.e., 6 in addition to the 4 who said the same thing when asked if they had WWW access on the job).

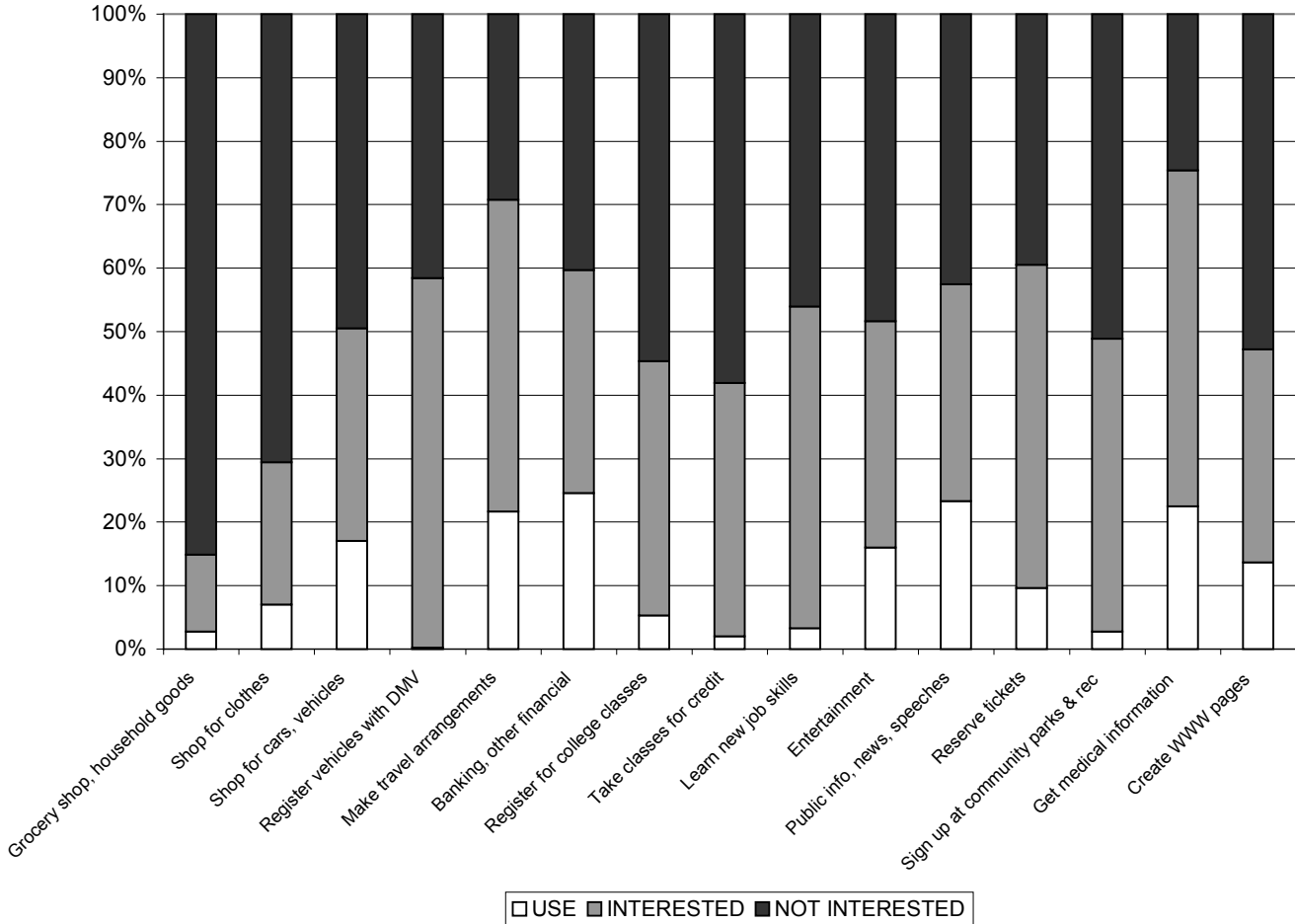
First, we examine ways respondents already use the WWW. The items are ordered from high to low by frequency of response.

- 24% file tax returns or check financial information, such as on-line banking, the stock market, or the value of stocks or retirement funds;
- 23% read or listen to public information, newspapers, speeches and lectures;
- 23% get medical information or information on drugs and treatments;
- 22% buy airline tickets, reserve a hotel room, rent a car, reserve a campground space, or make other kinds of travel arrangements;
- 17% shop for cars, trucks, and other vehicles;
- 16% watch TV or movies, listen to music, or download music;
- 14% know how to create WWW pages;
- 10% reserve tickets for concerts, sport events, plays, dances, art exhibits, museums, or other events;
- 7% shop for clothes;
- 5% register for college classes;
- 3% learn new skills for a job or on-the-job training;
- 3% sign up for classes or sports at community parks and recreation;
- 3% shop for groceries and household goods;
- 2% take high school or college classes for credit;
- one person reported registering a car, truck or other vehicle at the Oregon Department of Motor Vehicles, although Oregon does not allow this yet.

Those most likely to already use the WWW are: Deschutes County residents, those with high household incomes, those who have more than one person in the household, those who have multiple household telephone lines, those with children in the home, homeowners, whites,

those with home businesses, those with home computers, and those with home Internet access. These patterns vary, of course, by item above, but these are the general patterns.

**Figure 2: Things WWW Can Be Used For: Already Use, Interested in Using, Not Interested**



Next, we examine respondents' interest in learning how to use the WWW for these purposes. Each number below indicates the percentage of respondents who would like to be able to use the WWW for the purpose indicated. Again, numbers are ordered from high to low by frequency of response.

- 58% register a car, truck or other vehicle at the Oregon Department of Motor Vehicles;
- 53% get medical information or information on drugs and treatments;
- 51% reserve tickets for concerts, sport events, plays, dances, art exhibits, museums, or other events;
- 51% learn new skills for a job or on-the-job training;

- 49% buy airline tickets, reserve a hotel room, rent a car, reserve a campground space, or make other kinds of travel arrangements;
- 46% sign up for classes or sports at community parks and recreation;
- 40% register for college classes;
- 40% take high school or college classes for credit;
- 35% watch TV or movies, listen to music, or download music;
- 35% file tax returns or check financial information, such as on-line banking, the stock market, or the value of stocks or retirement funds;
- 34% read or listen to public information, newspapers, speeches and lectures;
- 33% shop for cars, trucks, and other vehicles;
- 33% know how to create WWW pages;
- 22% shop for clothes;
- 12% shop for groceries and household goods.

The general patterns of those most interested in learning how to use the WWW are: Jefferson County residents, those with middle to high household incomes, those who have more than one person in the household, those who have multiple household telephone lines, those with children in the home, renters, and American Indians. Both respondents with and without home computers, and with and without home Internet access, show strong interest.

Finally, we examine the distribution of answers by the percentage of respondents *not* interested in using the WWW for each purpose.

- 84% shop for groceries and household goods;
- 71% shop for clothes;
- 58% take high school or college classes for credit;
- 55% register for college classes;
- 53% know how to create WWW pages;
- 51% sign up for classes or sports at community parks and recreation;
- 49% shop for cars, trucks, and other vehicles;
- 48% watch TV or movies, listen to music, or download music;
- 46% learn new skills for a job or on-the-job training;
- 42% read or listen to public information, newspapers, speeches and lectures;
- 42% register a car, truck or other vehicle at the Oregon Department of Motor Vehicles;
- 40% file tax returns or check financial information, such as on-line banking, the stock market, or the value of stocks or retirement funds;
- 39% reserve tickets for concerts, sport events, plays, dances, art exhibits, museums, or other events;
- 29% buy airline tickets, reserve a hotel room, rent a car, reserve a campground space, or make other kinds of travel arrangements;
- 25% get medical information or information on drugs and treatments.

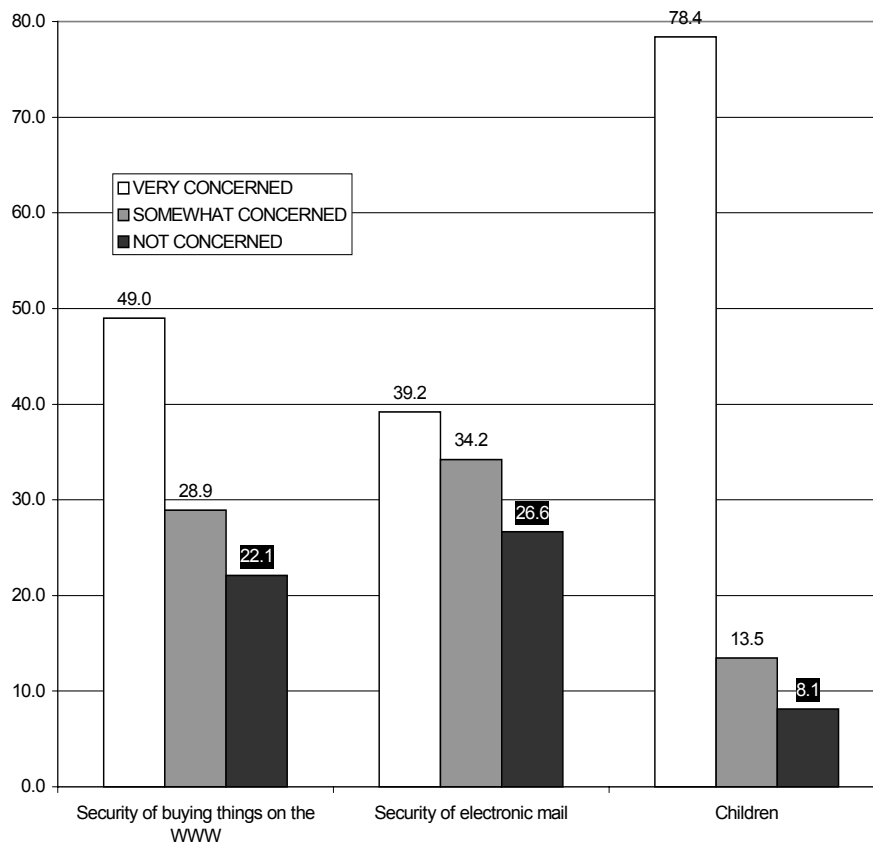
Those who do not want to learn how to use the WWW are disproportionately Crook County residents, those with low household incomes, those in single-person households, those who

have one household telephone line, those in childless households, homeowners, and those without home businesses, home computers, and home Internet access. These patterns vary, of course, by item above, but these are the general patterns.

8: SECURITY CONCERNS ABOUT THE INTERNET AND WORLD WIDE WEB

Respondents were asked three questions about their security concerns regarding the Internet and WWW. The results are summarized in Figure 3. When asked: “How concerned are you about the security of buying things on the World Wide Web?” 14% said they were “very concerned,” 33% “somewhat concerned,” and 53% “not concerned.” In response to a parallel question about the security of electronic mail, 38% said they were “very concerned,” 33% “somewhat concerned,” 26% “not concerned,” and 3% did not know. Finally, when asked “How concerned are you about children finding things they shouldn’t see on the World Wide Web?” 78% said they were “very concerned,” 13% “somewhat concerned,” and only 8% said “not concerned.” Not surprisingly, those with children in the home were more likely to voice concern than those without children. Generally speaking, Deschutes County residents disproportionately voiced no concern.

Figure 3: Internet Security Concerns



In two open-ended questions, respondents were asked to voice “the most positive quality” and “the one greatest problem or risk” of the WWW or Internet. These were not coded, in order

to save money. But the open-ended narratives are available in another section of this report for detailed perusal.

#### 9: TELEVISION AND CABLE SERVICE

Only two survey respondents did not have a television in their household, both in Deschutes County. Among those with televisions, 72% have cable services. While 77% of those in Crook County have cable service, just 71% do in Deschutes County and 69% in Jefferson County. As household income increases, the likelihood of having cable service increases. Respondents without home computers or Internet access are more likely to have cable TV.

Fully 76% of those with cable services have a hard wire into their home, while 19% have a wireless service, and 4% have both. Wireless is much more common in Jefferson County, with 35% of residents interviewed (30% wireless plus 5% both wireless and hardwire), compared to 27% of those in Crook County and 22% of those in Deschutes County. Wireless is also more common among high-income households (about 29% for those earning over \$50,000 per year, compared to 12% of those earning less than \$25,000), and among households without home computers or Internet access.

#### 10: TELEPHONE SERVICE

*Local Telephone Service:* Since this is a telephone survey, clearly 100% of respondents had household telephones. For 93% local telephone service provider was USWest; 3% said “other” and 4% did not know. No respondent indicated Shared Communications, Unicom, or more than one provider. Those who indicated “other” are more often in Jefferson County (7.1%) and Crook County (5.6%) than Deschutes County (2.6%). “Other” service is also more often provided for low-income households.

*Quality of Local Telephone Service:* Twenty-nine percent of respondents rated the quality of their local telephone service “excellent,” 50% “good,” 14% “fair,” and 6% “poor.” Deschutes County residents gave lower ratings for telephone service than Crook or Jefferson County residents. Those with home businesses, multiple telephone lines, and Internet access also gave lower ratings. Respondents also were asked the open-ended question: “If there is one thing you could change or improve about your telephone service, what would it be?” The narrative answers are presented elsewhere and are separated by whether the respondent gave a positive or negative quality rating.

*Number of Telephone Lines:* About half of the respondents’ households had a single telephone line, 26% had 2 lines, 13% had 3 lines, 6% had 4 lines, and 4% had 5 or more telephone lines, including cell phones. Jefferson County residents were more likely to have single lines. Those with multiple lines had disproportionately higher household incomes, more persons in the household, more often had children, and more often had home businesses, home computers and Internet access..

Fully 81% of those with multiple telephone lines have a cell phone (n = 162), but only one of those persons said that their cell phone was their main household telephone number. Cell phones are most common among single-person households (92%) and among those earning \$25,000-\$35,000 (95%).

Of those with multiple telephone lines, 36% have one or more lines dedicated mainly for computer use. Of those respondents with home computers, 45% have a telephone line dedicated for computer use. Of those with home Internet access, 52% have a telephone line dedicated for computer use.

Of those with multiple telephone lines, 28% have one or more lines dedicated mainly for home business use. And of those with telephone lines dedicated to a home business, 86% have a home computer and 74% have Internet access – both greater than those without a telephone line dedicated to a home business.

Of the 198 respondents with single household lines, only 8% are planning to add a second telephone number within the next 12 months. Those planning to add a telephone line are disproportionately in Jefferson County (18%), in higher household income brackets (19% of those earning over \$50,000 pr year), have more persons per household (14%-17% of those with 3, 4 and 5 household members), have children (16%, while 94% of those not wanting a second line have no children). Those planning to add a telephone line also disproportionately have a home business (19%, compared to 7% of those not planning a second line), have a home computer (69%, compared to 41%), and have Internet access (56%, compared to 29%).

*Telephone Devices and Services:* Every respondent was asked about special telephone devices and services they might have. Below are the frequencies for each, ordered high to low. Also see Figure 1.

- 42% call waiting;
- 35% ability to send a fax;
- 35% caller ID;
- 19% pager;
- 13% voice mail service (not including answering machines);
- 6% an 800 number.

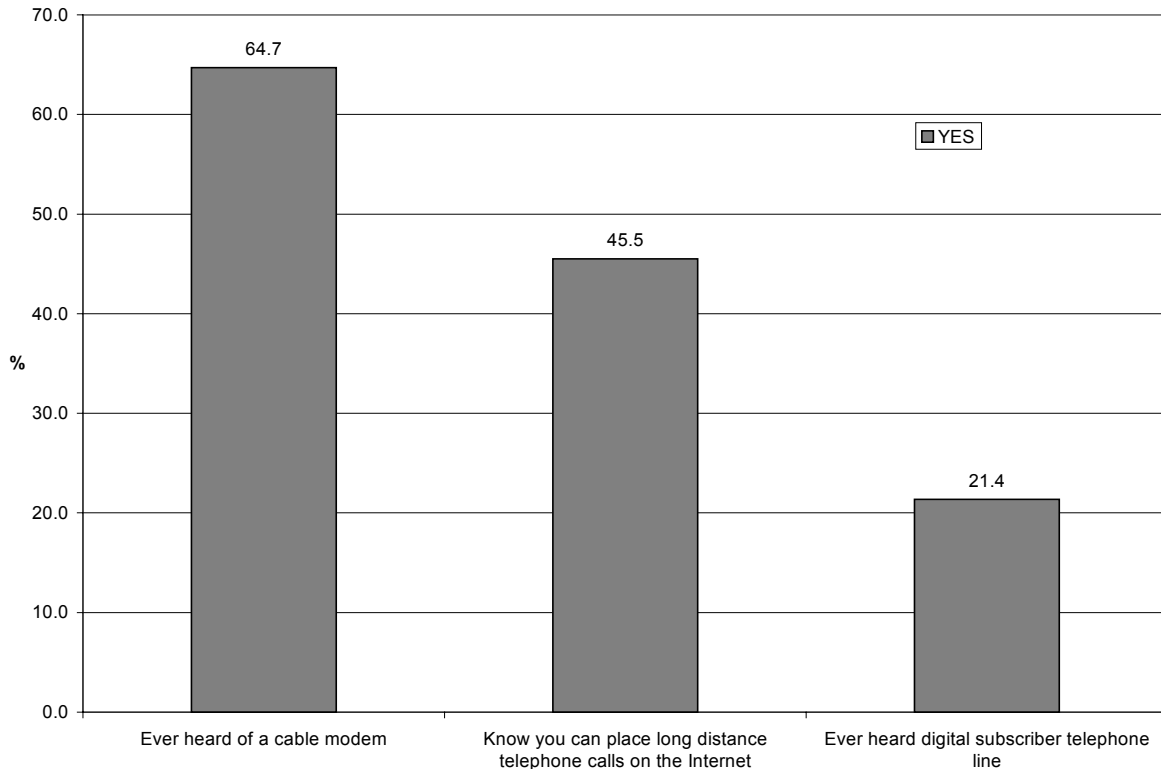
Those consistently more likely to have these services were households with high income levels, more than 1 person, 3 or more persons, home businesses, home computers and Internet access. Renters were more likely than homeowners to have call waiting, caller ID, and pagers, while homeowners were more likely to have voice mail, an 800 number, and fax machines. Households with children were more likely to have call waiting, caller ID, pagers, and fax machines.

*Monthly Telephone Bill:* The median cost for telephones and telephone services, on average, in this sample was \$50, while the range was \$1 to \$500 per month. Just 5% paid less \$20 monthly, 29% paid \$20-\$49, 29% paid \$50-\$74, 8% paid \$75-\$99, 15% paid \$100-\$199, 3% paid \$200-\$299, and 2% paid \$300-\$500. About 10% either refused or did not know their average monthly telephone bill. Telephone bills increase with household income, household size, the number of telephone lines, children, a home business, a home computer and Internet access.



*Telephone Knowledge:* Respondents were asked two questions to measure their knowledge of new telephone service possibilities (see Figure 4). Forty-five percent knew that people can place long distance telephone calls on the Internet, and 21% had heard of a digital subscriber telephone line. The first varies little with anything we have examined, although home computer owners and those with Internet access are slightly more likely to know it. Knowledge of digital subscriber lines is greater among those with the highest incomes, 3 or more telephone lines, home computers, and Internet access.

**Figure 4: Telecommunication Knowledge**



## CONCLUSIONS

This survey provides a wealth of information concerning various facets of telecommunications issues in Central Oregon households, specifically Deschutes, Jefferson and Crook Counties. In this report, we have paid particular attention to variation in the facets of computer ownership, Internet and WWW access, Internet and WWW use, television cable service, and telephone services. A great deal can be done with these data in terms of planning to meet the community's needs. If the results of this survey, and its companion business and organization survey, result in changes, it would be possible to conduct a subsequent community survey to help chart change over time, in particular change which can be attributed to particular innovations and policies.