

# CENTER FOR APPLIED RURAL INNOVATION 

## A Research Report*

Moving Toward the Digital Age: Changes in Rural Nebraskans' Use of Technology

2002 Nebraska Rural Poll Results
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## Nebraska

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All of the Center's research reports detailing Nebraska Rural Poll results are located on the Center's World Wide Web page at http://cari.unl.edu/ruralpoll.htm.

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## Executive Summary

The use of telecommunications technologies nationwide has increased dramatically during the past five years. New applications are constantly being developed and implemented. How has rural Nebraskans' use of telecommunications changed over the past five years? Does use of technology differ by age, income, and education?

This report details 2,841 responses to the 2002 Nebraska Rural Poll, the seventh annual effort to understand rural Nebraskans' perceptions. Respondents were asked a question regarding their use of some telecommunications technologies or applications. Trends for this question are examined by comparing data from this year to the 1997 study. In addition, comparisons are made among different respondent subgroups, i.e., comparisons by age, occupation, region, etc. Based on these analyses, some key findings emerged:

- The use of telecommunications technologies by rural Nebraskans has increased over the past five years. For example, in 1997 only 13 percent of the respondents regularly used e-mail. In 2002, 42 percent regularly use e-mail. Similarly, when asked about the "World Wide Web" in 1997, only eight percent said they use it regularly. However, in 2002, 43 percent say they regularly use "Internet access."
- The technologies or applications used most often include: telephone answering machine, cable TV, personal computer and cellular phone. The proportions reporting that they regularly use each are as follows: answering machine (65\%), cable TV (53\%), personal computer (49\%) and cellular phone (47\%).
- The groups most likely to use all of the technologies include: younger persons, those with higher household incomes, males, persons with higher education levels, married respondents and persons with professional occupations.


## Introduction

The use of telecommunications technologies nationwide has increased dramatically during the past five years. New applications are constantly being developed and implemented. Given that, how has rural Nebraskans' use of technologies changed over the past five years? Does use of technology differ by age, income, and education? This paper addresses these questions.

The 2002 Nebraska Rural Poll is the seventh annual effort to understand rural Nebraskans' perceptions. Respondents were asked a question about their use of telecommunications technologies or applications. Trends for this question will be examined by comparing the data from the 1997 Poll to this year's results.

## Methodology and Respondent Profile

This study is based on 2,841 responses from Nebraskans living in the 87 nonmetropolitan counties in the state. A selfadministered questionnaire was mailed in February and March to approximately 6,400 randomly selected households. Metropolitan counties not included in the sample were Cass, Dakota, Douglas, Lancaster, Sarpy and Washington. The 14page questionnaire included questions pertaining to well-being, community, work, successful rural communities, and technology use. This paper reports only results from the technology use portion of the survey.

A 44\% response rate was achieved using the total design method (Dillman, 1978). The sequence of steps used follow:

1. A pre-notification letter was sent requesting participation in the study.
2. The questionnaire was mailed with an informal letter signed by the project director approximately seven days later.
3. A reminder postcard was sent to the entire sample approximately seven days after the questionnaire had been sent.
4. Those who had not yet responded within approximately 14 days of the original mailing were sent a replacement questionnaire.

The average respondent is 55 years of age. Seventy-three percent are married (Appendix Table $1^{1}$ ) and sixty-eight percent live within the city limits of a town or village. On average, respondents have lived in Nebraska 48 years and have lived in their current community 42 years. Fifty-seven percent are living in or near towns or villages with populations less than 5,000 .

Fifty-six percent of the respondents reported their approximate household income from all sources, before taxes, for 2001 was below $\$ 40,000$. Thirty percent reported incomes over $\$ 50,000$. Ninety-three percent have attained at least a high school diploma.

Seventy-two percent were employed in 2001 on a full-time, part-time, or seasonal basis. Twenty-four percent are retired. Thirty-four percent of those employed reported working in a professional, technical or administrative occupation. Seventeen percent indicated they were farmers or ranchers. The

[^0]employed respondents reported having to drive an average of eight miles, one way, to their primary job.

## Use of Telecommunications Technologies

As mentioned previously in this paper, telecommunications technologies are becoming more pervasive. This survey asked the following question to determine how frequently rural Nebraskans use ten different telecommunications technologies or applications:

Listed below are some telecommunications technologies or applications now in use by some people. For each of the following, please indicate how often you use each.

The technologies with the largest proportion of respondents using them regularly are: telephone answering machine ( $65 \%$ ), cable

TV (53\%), personal computer (49\%), and cellular phone (47\%) (Figure1).
Conversely, the technologies or applications with the lowest proportions of respondents stating that they use them regularly are: telemedicine applications (2\%), purchasing online ( $7 \%$ ), and fax machine ( $17 \%$ ).

The use of telecommunications technologies has changed dramatically during the past five years (Table 1). For example, in 1997 only 13 percent of the respondents said they regularly used e-mail. In 2002, 42 percent say they regularly use e-mail. Similarly, when asked about the "World Wide Web" in 1997, only 8 percent said they used it regularly. In 2002, 43 percent say they regularly use "Internet access." The proportions regularly using a fax machine and telemedicine applications (electronic medical monitoring) have not changed much over the past five years.


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Table 1. Proportions of Respondents Using Technologies or Applications Regularly in 1997 and 2002.

| Item | 1997 | 2002 |
| :---: | :---: | :---: |
| Telephone answering |  |  |
| machine | 55 | 65 |
| Cable TV | NA | 53 |
| Personal computer | 30 | 49 |
| Cellular phone | 30 | 47 |
| Internet access* | 8 | 43 |
| E-mail | 13 | 42 |
| Satellite TV | 21 | 31 |
| Fax machine | 18 | 17 |
| Purchasing online | NA | 7 |
| Telemedicine applications** | 1 | 2 |

[^1]The responses to this question were also analyzed by community size, region, and various individual characteristics (Appendix Table 2). The use of most of the technologies or applications differ by income, age, gender, education, marital status, and occupation. The younger respondents, those with higher household incomes, males, persons with higher educational levels, the married respondents and persons with professional occupations are the groups most likely to use most of the technologies.

The use of the following technologies also differ by community size: personal computer, Internet access, e-mail, satellite TV, and cable TV. Except for satellite TV, the persons living in larger communities are
more likely than those living in smaller communities to regularly use these technologies. Persons living in smaller communities, though, are more likely to use satellite TV.

Regional differences occur when examining the use of cable TV and satellite TV. Residents of the Panhandle are more likely than persons living in other regions of the state to regularly use satellite TV (see Appendix Figure 1 for the counties included in each region). Persons living in the South Central region are most likely to use cable TV.

## Conclusion

The use of telecommunications technologies by rural Nebraskans has dramatically increased over the past five years. The technologies showing the highest increase in use include: Internet access, e-mail, and a personal computer.

However, not all rural Nebraskans are using these technologies. Persons with higher incomes, younger adults, those with higher education levels, males, and persons with professional occupations are the groups most likely to be using these technologies.

## Appendix Figure 1. Regions of Nebraska


$\square$ Metropolitan counties (not surveyed)

|  | $\begin{gathered} 2002 \\ \text { Poll } \end{gathered}$ | $\begin{gathered} 2001 \\ \text { Poll } \end{gathered}$ | $\begin{gathered} 2000 \\ \text { Poll } \end{gathered}$ | $\begin{gathered} 1999 \\ \text { Poll } \end{gathered}$ | $\begin{gathered} 1998 \\ \text { Poll } \end{gathered}$ | 1990 Census |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| Age : ${ }^{1}$ |  |  |  |  |  |  |
| 20-39 | 16\% | 17\% | 20\% | 21\% | 25\% | 38\% |
| 40-64 | 51\% | 49\% | 54\% | 52\% | 55\% | 36\% |
| 65 and over | 32\% | 33\% | 26\% | 28\% | 20\% | 26\% |
| Gender: ${ }^{2}$ |  |  |  |  |  |  |
| Female | 36\% | 37\% | 57\% | 31\% | 58\% | 49\% |
| Male | 64\% | 63\% | 43\% | 69\% | 42\% | 51\% |
| Education: ${ }^{3}$ |  |  |  |  |  |  |
| Less than $9^{\text {th }}$ grade | 3\% | 4\% | 2\% | 3\% | 2\% | 10\% |
| $9^{\text {th }}$ to $12^{\text {th }}$ grade (no diploma) | 4\% | 5\% | 4\% | 5\% | 3\% | 12\% |
| High school diploma (or equivalent) | 32\% | 35\% | 34\% | 36\% | 33\% | 38\% |
| Some college, no degree | 25\% | 26\% | 28\% | 25\% | 27\% | 21\% |
| Associate degree | 10\% | 8\% | 9\% | 9\% | 10\% | 7\% |
| Bachelors degree | 16\% | 13\% | 15\% | 15\% | 16\% | 9\% |
| Graduate or professional degree | 10\% | 8\% | 9\% | 8\% | 9\% | 3\% |
| Household income: ${ }^{4}$ |  |  |  |  |  |  |
| Less than \$10,000 | 8\% | 9\% | 3\% | 8\% | 3\% | 19\% |
| \$10,000-\$19,999 | 15\% | 16\% | 10\% | 15\% | 10\% | 25\% |
| \$20,000-\$29,999 | 17\% | 20\% | 15\% | 18\% | 17\% | 21\% |
| \$30,000-\$39,999 | 17\% | 16\% | 19\% | 18\% | 20\% | 15\% |
| \$40,000 - \$49,999 | 14\% | 14\% | 17\% | 15\% | 18\% | 9\% |
| \$50,000-\$59,999 | 11\% | 9\% | 15\% | 9\% | 12\% | 5\% |
| \$60,000-\$74,999 | 9\% | 8\% | 11\% | 8\% | 10\% | 3\% |
| \$75,000 or more | 10\% | 8\% | 11\% | 10\% | 10\% | 3\% |
| Marital Status: ${ }^{5}$ |  |  |  |  |  |  |
| Married | 73\% | 70\% | 95\% | 76\% | 95\% | 64\% |
| Never married | 6\% | 7\% | 0.2\% | 7\% | 0.4\% | 20\% |
| Divorced/separated | 9\% | 10\% | 2\% | 8\% | 1\% | 7\% |
| Widowed/widower | 12\% | 14\% | 4\% | 10\% | 3\% | 10\% |

[^2]Appendix Table 2. Use of Telecommunications Technologies by Community, Size, Region and Individual Attributes.

|  | Telephone answering machine |  |  |  |  |  | Personal computer |  |  |  |  |  |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
|  | Never heard of | $\begin{gathered} \text { Don't } \\ \text { use } \\ \hline \end{gathered}$ | $\begin{gathered} \text { Rarely } \\ \text { use } \end{gathered}$ | Use occasionally | Use regularly | Significance | Never heard of | $\begin{gathered} \text { Don't } \\ \text { use } \end{gathered}$ | Rarely use | Use occasionally | Use regularly | Significance |
|  | Percentages |  |  |  |  |  |  |  |  |  |  |  |
| Community Size | ( $\mathrm{n}=2691$ ) |  |  |  |  | $\begin{gathered} \mathrm{P}^{2}=14.22 \\ (.076) \end{gathered}$ | ( $\mathrm{n}=2669$ ) |  |  |  |  |  |
| Less than 500 | 1 | 25 | 3 | 11 | 61 |  | 1 | 37 | 7 | 17 | 40 |  |
| 500-4,999 | 0* | 21 | 3 | 11 | 65 |  | 1 | 32 | 5 | 13 | 49 | $\mathrm{P}^{2}=27.75$ |
| 5,000 and up | 0* | 18 | 3 | 11 | 68 |  | 1 | 27 | 5 | 15 | 53 | (.001) |
| Region | $(\mathrm{n}=2763)$ |  |  |  |  |  | $(\mathrm{n}=2742)$ |  |  |  |  |  |
| Panhandle | 0* | 20 | 5 | 9 | 65 |  | 1 | 28 | 4 | 17 | 50 |  |
| North Central | 0* | 22 | 3 | 9 | 66 |  | 1 | 34 | 4 | 9 | 52 |  |
| South Central | 0* | 20 | 3 | 12 | 65 |  | 1 | 28 | 6 | 15 | 51 |  |
| Northeast | 0* | 22 | 2 | 13 | 63 | $\mathrm{P}^{2}=15.68$ | 1 | 31 | 5 | 15 | 48 | $\mathrm{P}^{2}=23.29$ |
| Southeast | 0 | 19 | 4 | 10 | 67 | (.476) | 0* | 34 | 5 | 15 | 45 | (.106) |
| Individual Attributes: |  |  |  |  |  |  |  |  |  |  |  |  |
| Income Level | ( $\mathrm{n}=2517$ ) |  |  |  |  |  |  |  | ( $\mathrm{n}=$ | 506) |  |  |
| Under \$20,000 | 1 | 33 | 4 | 10 | 53 |  | 2 | 54 | 4 | 12 | 29 |  |
| \$20,000-\$39,999 | 0 | 21 | 3 | 12 | 63 |  | 1 | 34 | 6 | 15 | 45 |  |
| \$40,000-\$59,999 | 0 | 13 | 3 | 12 | 72 | $\mathrm{P}^{2}=155.10$ | 0* | 17 | 5 | 16 | 61 | $\mathrm{P}^{2}=367.39$ |
| \$60,000 and over | 0 | 9 | 2 | 9 | 80 | (.000) | 0 | 8 | 4 | 14 | 74 | (.000) |
| Age | $(\mathrm{n}=2785)$ |  |  |  |  |  |  |  | ( $\mathrm{n}=$ | 2764) |  |  |
| 19-39 | 0 | 9 | 2 | 11 | 78 |  | 0* | 8 | 4 | 17 | 71 |  |
| 40-64 | 0 | 14 | 4 | 11 | 72 | $\mathrm{P}^{2}=266.67$ | 0* | 20 | 6 | 17 | 57 | $\mathrm{P}^{2}=594.03$ |
| 65 and older | 1 | 38 | 3 | 11 | 48 | (.000) | 2 | 61 | 4 | 10 | 24 | (.000) |
| Gender | $(\mathrm{n}=2747)$ |  |  |  |  |  |  |  | ( $\mathrm{n}=$ | 726) |  |  |
| Male | 0* | 18 | 4 | 13 | 65 | $\mathrm{P}^{2}=29.50$ | 1 | 28 | 5 | 17 | 49 | $\mathrm{P}^{2}=34.38$ |
| Female | 0* | 24 | 2 | 8 | 66 | (.000) | 1 | 36 | 4 | 10 | 49 | (.000) |
| Education | $(\mathrm{n}=2747)$ |  |  |  |  |  | ( $\mathrm{n}=2725$ ) |  |  |  |  |  |
| High school or less | 0* | 29 | 4 | 12 | 55 |  | 1 | 51 | 5 | 14 | 30 |  |
| Some college | 0* | 15 | 4 | 12 | 70 | $\mathrm{P}^{2}=118.03$ | 0* | 22 | 6 | 16 | 56 | $\mathrm{P}^{2}=412.50$ |
| Bachelors/grad degree | 0* | 15 | 2 | 8 | 76 | (.000) | 0* | 12 | 4 | 14 | 70 | (.000) |
| Marital Status | $(\mathrm{n}=2747$ ) |  |  |  |  |  | $(\mathrm{n}=2725)$ |  |  |  |  |  |
| Married | 0* | 18 | 3 | 11 | 68 |  | 0* | 24 | 5 | 16 | 54 |  |
| Never married | 0 | 24 | 4 | 12 | 60 |  | 1 | 30 | 6 | 12 | 52 |  |
| Divorced/separated | 0 | 13 | 4 | 13 | 71 | $\mathrm{P}^{2}=100.87$ | 0* | 36 | 6 | 12 | 47 | $\mathrm{P}^{2}=273.41$ |
| Widowed | 1 | 40 | 3 | 9 | 48 | (.000) | 2 | 69 | 3 | 6 | 20 | (.000) |
| Occupation | $(\mathrm{n}=1896)$ |  |  |  |  |  | $(\mathrm{n}=1896)$ |  |  |  |  |  |
| Prof./technical/admin | 0 | 10 | 2 | 9 | 79 |  | 0* | 7 | 5 | 13 | 75 |  |
| Farming/ranching | 0 | 16 | 2 | 10 | 72 |  | 1 | 23 | 8 | 22 | 47 |  |
| Laborer | 0* | 16 | 4 | 15 | 64 | $\mathrm{P}^{2}=38.90$ | 1 | 30 | 7 | 19 | 43 | $\mathrm{P}^{2}=157.84$ |
| Other | 0 | 16 | 4 | 10 | 70 | (.000) | 0* | 23 | 4 | 16 | 57 | (.000) |


$0^{*}=$ Less than 1 percent.

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[^0]:    ${ }^{1}$ Appendix Table 1 also includes demographic data from previous rural polls, as well as similar data based on the entire non-metropolitan population of Nebraska (using 1990 U.S. Census data).

[^1]:    Note: The list of items was not identical in each study. "NA" means that item was not asked that particular year.

    * Worded as World Wide Web in 1997 study.
    ** Worded as Electronic Medical Monitoring in 1997 study.

[^2]:    ${ }^{1} 1990$ Census universe is non-metro population 20 years of age and over.
    ${ }^{2} 1990$ Census universe is total non-metro population.
    ${ }^{3} 1990$ Census universe is non-metro population 18 years of age and over.
    41990 Census universe is all non-metro households.
    51990 Census universe is non-metro population 15 years of age and over.

