Representing Seniors in an Online National Probability Panel: Measuring Technology Attitudes and Behaviors

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Abstract

Representation of seniors is often a concern when considering an online panel to conduct research due to their lower access and use of the internet compared to other groups. Using data from KnowledgePanel®, a national probability-based web panel that provides internet access to non-internet households, we will present our analyses on the distinctive technology attitudes and behaviors of seniors compared to other age groups. We also present evidence that seniors provided internet access upon recruitment have distinctive technology attitudes compared to seniors already who already had internet access. To measure the impact of panel membership, we explore within-person change over time on technology attitudes.

Key Words: seniors, technology attitudes, KnowledgePanel®

1. Background and Objectives

Approximately 2 in 5 seniors (those aged 65 and older) are currently online (Pew, 2009). As Figure 1 shows, while this is an increase of 58% since 2004, the representation of seniors online is considerably below younger age groups.

Figure 1: Trends in Internet Usage, By Age Group
Percent of Americans Online
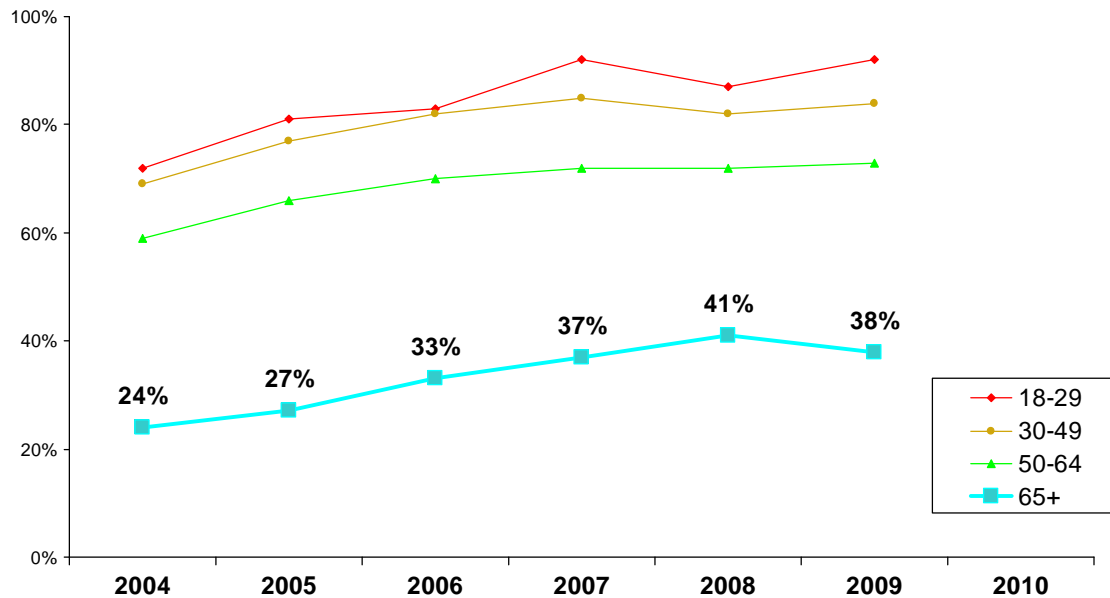
Source: Pew Internet and the American Life Project, 2009

The objectives of this paper are to 1) explore technology attitudes and behaviors of seniors compared to other age groups; 2) identify differences in technology attitudes and behaviors among seniors who are on- or off-line; and 3) assess the impact of participation in an online panel on the technology attitudes/behaviors of seniors.

The main research questions that we seek to examine are:

1. Are seniors' attitudes less "pro-technology" than those of younger age groups?
2. Are seniors less likely to use technology than do younger age groups?
3. Do seniors for whom KN provides an online connection & device have less pro-technology attitudes/behaviors than those who were already online?
4. Over time, do the attitudes/behaviors of seniors on the panel become more pro-technology?

2. Methodology

2.1 Sample

To explore these questions, we used data from KnowledgePanel®, a probability-based online panel designed to be representative of the entire United States population. KnowledgePanel®, created by Knowledge Networks, is an online Non-Volunteer Access Panel, in which potential panel members are chosen via a statistically valid sampling method and using known published sampling frames that cover 99% of the U.S. population. Sampled non-internet households are provided a laptop computer and free internet service. KnowledgePanel consists of about 50,000 U.S. residents, age 18 and older, including cell phone-only households and those who are of Hispanic origin that were selected probabilistically.   Nineteen percent of the adults in KnowledgePanel® are 65 years old and older, comparable to the Census benchmark of 17% for the U.S. population.

Previously, KnowledgePanel's probability-based recruitment had been based on a national RDD frame. In 2009, KnowledgePanel switched to address-based sampling (ABS) to supplement the RDD frame in response to the growing number of cell-phone-only households that are outside of the RDD frame and in response to declining RDD response rate. ABS involves probability-based sampling of addresses from the U.S. Postal Service's Delivery Sequence File. Randomly sampled addresses are invited to join KnowledgePanel through a series of mailings (English and Spanish) and in some cases by telephone refusal conversion calls when a telephone number can be matched to the sampled address. Invited households can join the panel by one of several means: by completing and mailing back a paper form in a postage-paid envelope; by calling a toll-free hotline maintained by KN; or by going to a designated KN Web site and completing the recruitment form at the website.

Active panel members are notified of available surveys through email invitations and a modest incentive program is used to encourage participation and create member loyalty (free use of laptop and Internet or member points, usually worth $1 per survey).

2.2 Measures

For all new panel members, demographic information such as gender, age, race/ethnicity, income, and education are collected in an online "profile" survey. This information is used to determine eligibility for specific studies and eliminates the need for gathering basic demographic information on each panel survey.

In addition, a variety of other internal "profile" surveys are administered to panelists to collect information that might be useful for targeting later surveys.   For this study, we used data from these profile surveys to better understand the experiences and attitudes of seniors. In particular, we used 22 variables from a Computer Usage profile survey that was conducted among panel members in 2008 and again in 2009. The topics and number of items for the measures used are listed in Table 1.

Table 1: Measures

Topic	# of questions
Attitudes about technology	6
Number of computers in home (% zero)	1
Type of Internet connection (% dial-up/Web-TV)	1
Cell phone NON-ownership (% without a cell phone)	1
Online behaviors (% done regularly)	13
Total	22

2.3 Sample for Current Analysis

For the current study, we identified 26,041 adult English language KnowledgePanel members who were active on the panel as of November 2008 and had completed the Computer Usage profile survey in both November/December 2008 and November/December 2009. This sample included 5,061 seniors.

The questions on computer activities were not asked of panelists for whom KN provided access to the Internet, so analyses of these data was available only for panelists who were online prior to joining the panel.

Cross-time analysis was further restricted to 616 seniors who completed the first Computer Usage profile survey within their first 12 months on the panel and who completed the second wave of the survey. For cross-time analysis, the majority of the 616 seniors (69%) completed the 2nd wave of the survey 10-14 months after taking the first version.

Panelists are weighted to CPS benchmarks to be representative of the U.S. population on age, gender, race, Hispanic ethnicity, region, metro status, and education using post-stratification adjustments to offset any non-response or non-coverage bias.

Table 2 presents the sample sizes used in each analysis.

Table 2: Sample Sizes for Analyses

|	Unweighted N	(Weighted N)
Research Questions 1 & 2		
Age 18-29	2,037	(5,679)
Age 30-44	5,972	(6,986)
Age 45-64	12,971	(9,108)
Age 65+ (Seniors)	5,061	(4,267)
Research Question 3		
Seniors: KN provided Internet	843	(1824)
Seniors: Self-provided Internet	4,218	(3,237)
Research Question 4		
Seniors: Completed both surveys and completed Time 1 survey within 1 year of joining panel	616	(584)

Specific numbers will vary for each analysis due to item non-response.

3. Results

## 3.1 Technology Attitudes and Behaviors by Age

Our first research question asked: Are seniors' attitudes less "pro-technology" than those of younger age groups? Our review of six technology attitude variables shows clear differences between seniors and younger age groups. In particular, liking to "surf the Internet" showed the greatest difference between seniors and younger groups. Figure 2 presents these data. All differences between seniors and other age groups are significant at .05.

**Figure 2:** Attitudes about Technology, By Age Group
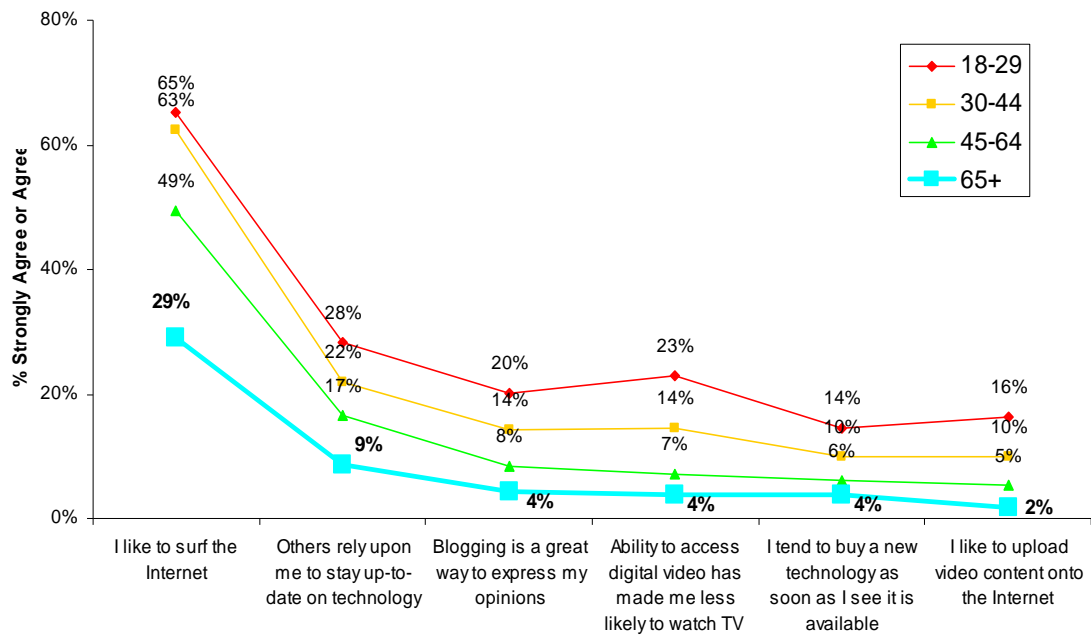
Our next question explored whether or not seniors are less likely to use technology than younger age groups. Again, we found strong support for this in the data we examined. This was the case both in ownership of technology (see Figure 3) and in the types of activities done online (see Figures 4 and 5).

**Figure 3:** Non-Ownership of Technology, By Age Group
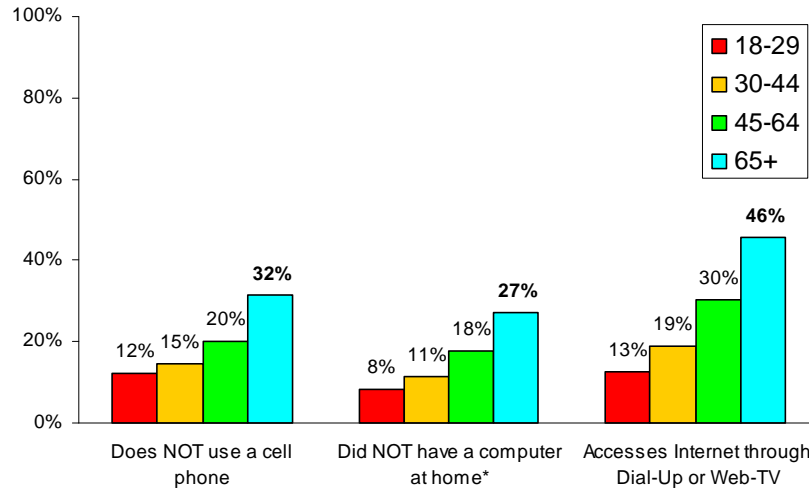
All differences between seniors and other age groups are significant at .05. Those reporting not having a computer at home indicates did not have a computer *before* being provided one by KN.

Figure 4: <u>Most Common</u> Items Regularly Done on the Internet, By Age Group
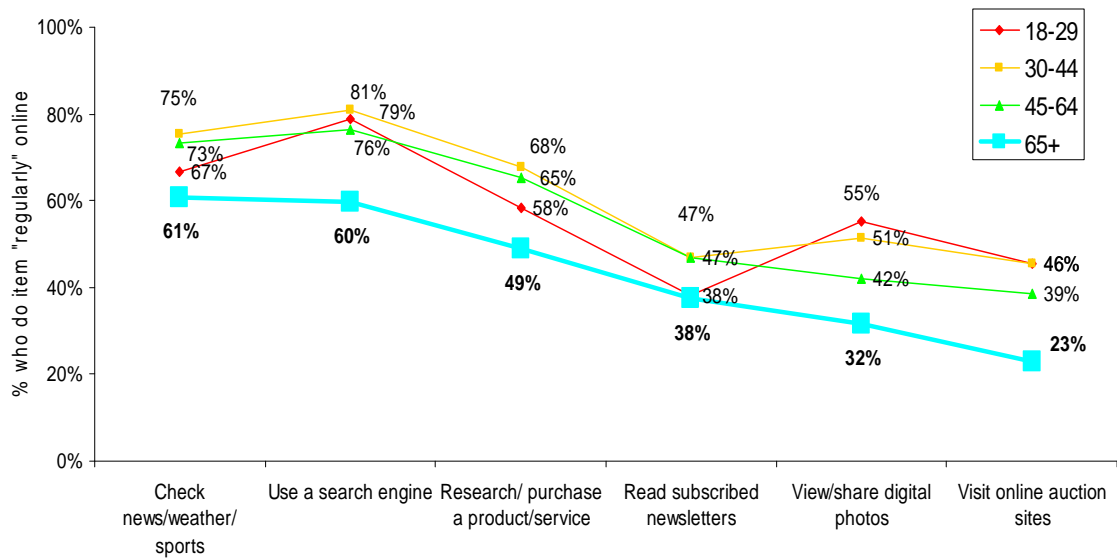
All differences between seniors and other age groups are significant at .05. One exception – read newsletters with age 18-29.

**Figure 5:** <u>Least Common</u> Items Regularly Done on the Internet, By Age Group
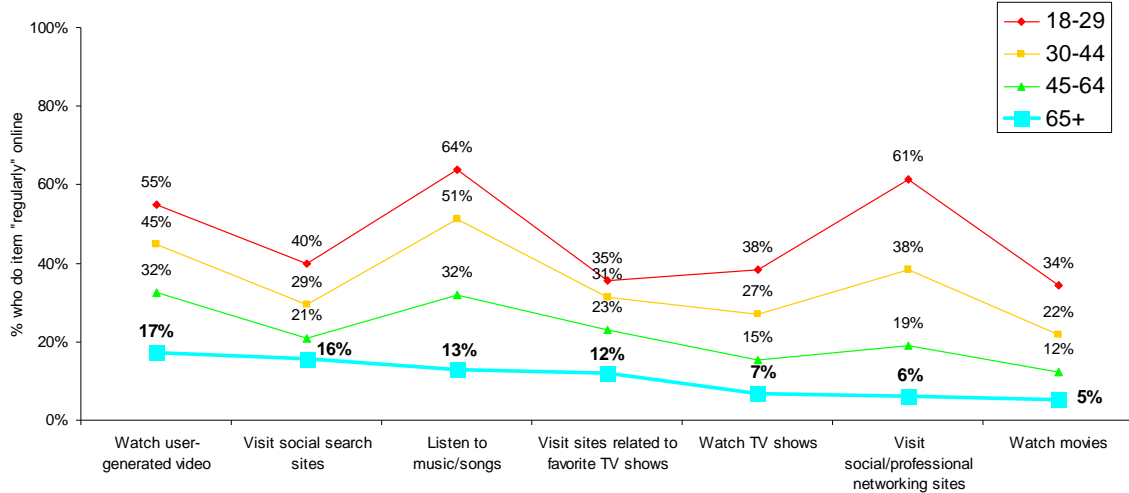
All differences between seniors and other age groups are significant at .05.

3.2 Technology Attitudes and Behaviors Among Seniors Who are Online and "Off-Line"

Our next interest was in using the KN web-enabled panel to better understand seniors who were "off-line." We compared seniors on the panel who had not had online access at home prior to joining the panel to those who were using their existing computer and online connection to participate. We wanted to know if seniors for whom KN provides an online connection & device have less pro-technology attitudes than those who were already online. We found support for this on four of the six attitudinal measures we examined (see Figure 6).

Figure 6: Attitudes about Technology Among Seniors, by Prior Online Access
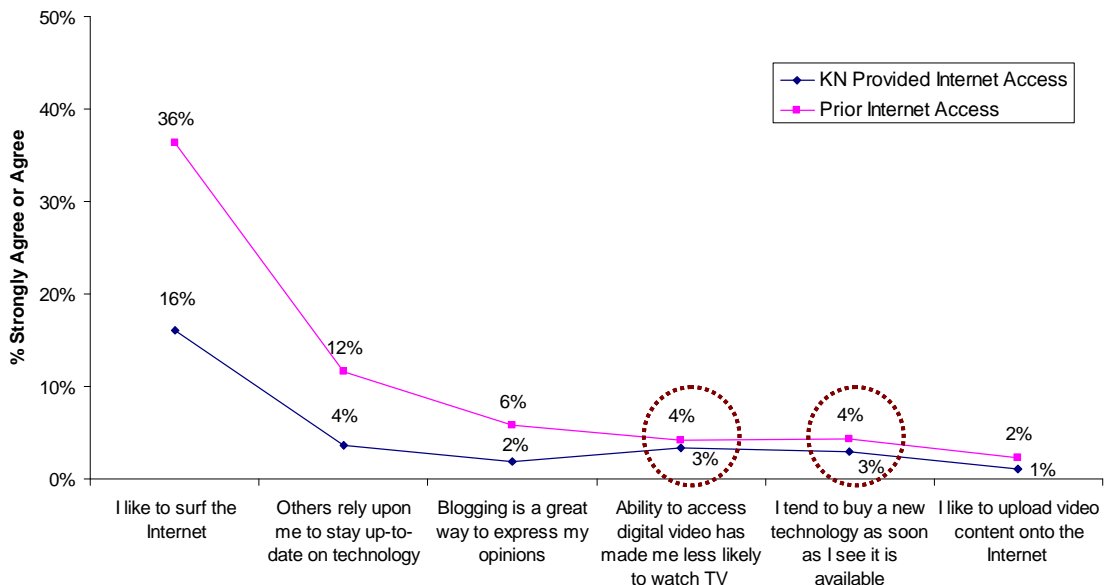

Circled differences are not significant. All other differences are significant.

Similarly, we found that seniors for whom KN provides an online connection and device were less likely than those who used their own prior internet access to NOT be cell-phone users (49% of seniors who KN provided Internet Access were not cell phone users, compared to only 22% of seniors who used their own connection). (No other variables were available for this measure as they were not asked of those who did not have prior online access.)

3.3 Changing Technology Attitudes & Behaviors: Among Seniors, Does Being on the KN Panel Have an Impact?

Finally, we looked at whether over time, the attitudes of seniors on the panel become more "pro-technology" due to participating in an online panel. We found that among seniors, most technology attitudes did <u>not</u> change significantly with panel involvement. Of the six attitude items we examined, none increased significantly and one item went *down* slightly, but significantly (see Figure 7).

Figure 7: Attitudes about Technology Among Seniors, Time 1 & 2
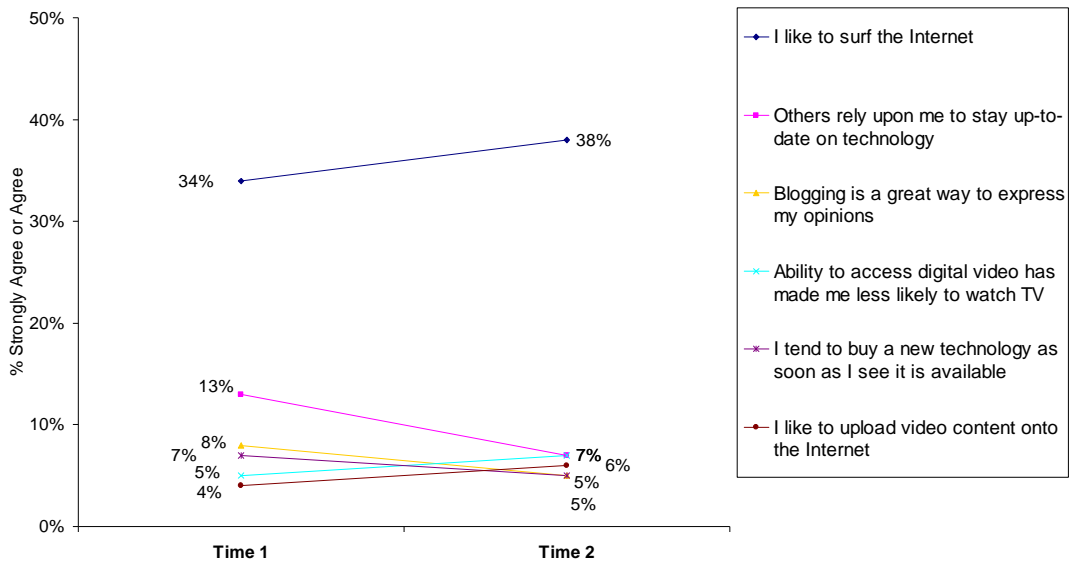
Differences between seniors at Time 1 and Time 2 are NOT significant, with one exception: "Others rely upon me to stay up-to-date on technology" significant decrease from 13% to 7% (*)

Looking at their behaviors, we saw slight yet significant *decreases* in using search engines, reading newsletters and visiting auction sites.

Figure 8: <u>Most Common</u> Items Regularly Done on the Internet, Among Seniors, Time 1 & 2
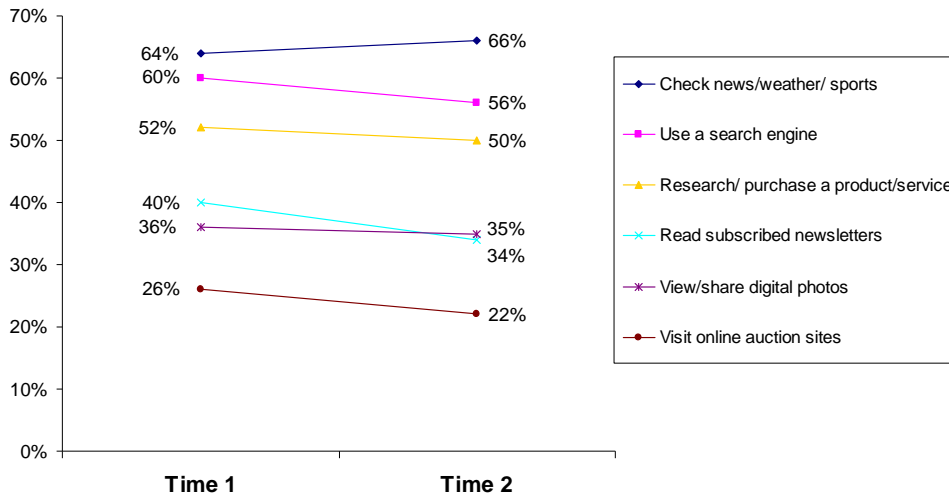
Starred (*) items are significantly different between Time 1 and Time 2 at .05, all decreases.

The only item we saw that had significantly increased was the use of social network sites, likely due to cultural changes rather than impact of panel tenure. Other activities are flat or slightly down (see Figure 9). Put in context, according to the Pew Internet and the American Life project, 7% of seniors in 2008 had ever used social or professional networking sites like Friendster or Linked-in. By 2009, that had increased to 13% of seniors.

Figure 9: <u>Least Common</u> Items Regularly Done on the Internet, Among Seniors, Time 1 & 2
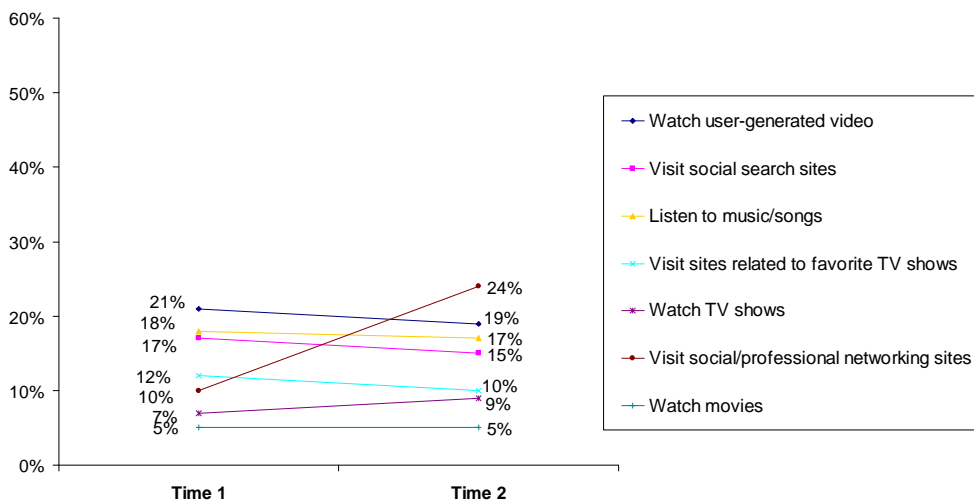
Stared (*) items are significantly different between Time 1 and Time 2 at .05.

4. Conclusion

As expected, we found that seniors demonstrate less "pro-technology" attitudes and behaviors than do younger age groups and were significantly different on 21 of 22 measures examined. Further, seniors for whom KN has provided Internet access differed significantly from seniors who already had access on 5 of 7 measures. This is evidence that the 3 in 5 seniors who are not currently online are different than online seniors, at least on these measures of technology attitudes/behaviors.

Seniors participating in KN's panel showed little change across panel tenure, showing significant change on 5 of 19 variables. Four of the significant changes were decreased activity and only 1 was an increase in activity, that of visiting social networking sites. This suggests that online panel participation does little to increase these technology attitude/behavior measures.

5. Considerations and Limitations

This was a descriptive analysis of measures available from the KN profile surveys. The measures available might not fully reflect technology attitudes and behaviors, as they were chosen based on availability rather than tested in advance.

We were unable to find any benchmarks from RDD or other methodologies that perfectly paralleled our survey questions. However, telephone interview data from Pew suggest to us that our data are very close to national estimates.

We compared senior panelists with access provided by KN to those using their own connection that happened to be dial-up and found few significant differences (2 of 8 items were significant). We did not have measures on activities done on the Internet for those that KN provides online access. Therefore, Time 1 to Time 2 findings are based only on those who were already online prior to participation.

Another element that might be a factor is that seniors provided access by KN are provided a dial-up connection, rather than high speed. This likely would influence the online experience and one's attitudes. According to Pew data, 19% of seniors with online access use a dial-up connection. Among KN seniors who are using their own online connection (not enabled by KN), 16% are using dial-up.

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