



Summary of KnowledgePanel® Design

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Knowledge Panel Overview

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. In addition, the KN panel also includes approximately 3,000 teens age 13 to 17 whose parents or legal guardians have provided consent. The panel size fluctuates because of the addition of panelists from the on-going recruitment and because of voluntary withdrawals and retirements of panelists reaching the end of their panel tenure.

Dual Frame Sample Recruitment Methodology

The first RDD recruitment to KnowledgePanel was conducted in 1999. At that time, all households recruited were given a WebTV to use for answering surveys. In August 2002, KN began allowing households to use their own computers connected to the Internet for taking surveys. Starting in January 2009, new Windows-based laptops were provided to non-Internet households instead of WebTV units.

Until recently, KnowledgePanel's probability-based recruitment had been based exclusively on a national RDD frame. In 2009, KN added address-based sample (ABS) frame 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.

For the RDD-based sampling, KN uses list-assisted RDD sampling techniques on the sample frame consisting of the entire U.S. residential telephone population. Knowledge Networks excludes only those banks of telephone numbers (each consisting of 100 telephone numbers) that have zero or one directory-listed phone number. Two strata are defined using 2000 Census Decennial Census data that has been appended to all telephone exchanges. The first stratum has a higher concentration of Black and Hispanic households, while the second stratum has a lower concentration of these groups relative to the national estimates. Telephone numbers are selected with equal probability of selection for each number within each of the two strata, with the higher concentration Black and Hispanic stratum being sampled at approximately twice the rate of the other stratum. Sampling is done without replacement.

For the RDD recruitment, the households for which there is an address-matched telephone number are sent an advance mailing (in English and Spanish) informing them that they have been selected to participate in KnowledgePanel. Seven to nine days following the advance letter, the telephone recruitment process begins for sampled numbers. Cases sent to telephone interviewers are dialed up to 90 days, with at least 10 dial attempts on cases where no one answers the phone. Extensive refusal conversion is also performed. Experienced interviewers conduct all recruitment interviews. The recruitment interview, which typically requires about 10 minutes, begins with the interviewer informing the household member that they have been selected to join KnowledgePanel Latino or KnowledgePanel®.

In addition, in 2008 KN constructed KnowledgePanel LatinoSM to provide researchers a capability to conduct representative online surveys with the U.S. Hispanic community. The sample for KnowledgePanel Latino is recruited by a hybrid telephone recruitment design, based on a national random-digit-dialing sample of U.S. Latinos and Hispanic-surname sample. It is a geographically balanced sample that covers areas that, when aggregated, encompasses approximately 93% of the nation's 45.5 million Latinos.

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. Once this survey is completed, the panel member is regarded as active and ready to be sampled for other surveys. Recruits to KnowledgePanel Latino are asked in a separate survey about language usage and proficiency, language spoken at home and at work, media usage in Spanish and English, country of birth, and other topics.

Panel Survey Sampling

Once panel members are profiled, they become eligible for selection for specific surveys. The sample is drawn from eligible members using an implicitly stratified systematic sample design. Customized stratified random sampling based on profile data is also conducted, as required by specific studies.

In September 2007, KN was assigned a U.S. Patent (U.S. Patent No. 7,269,570) for its unique methodology for selecting online survey samples. The selection methodology, which has been used by KN since 2000, assures that KN panel samples will closely track the U.S. population.

The implicitly stratified systematic sampling methodology was developed by KN in recognition of the practical issue that different surveys target different subpopulations. Often, only panel members with certain characteristics are selected for a survey. This can skew the remaining panel sample and affect the representativeness of later survey samples. The methodology was also

developed to attempt to correct for nonresponse and noncoverage error in the panel sample; see U.S. Patent No. 7,269,570 for more information.

Survey Frequency and Burden

To minimize panel attrition, surveys are usually kept short (from 5 to 20 minutes in length). For surveys requiring 16 or more survey minutes, survey participation is rewarded with a variety of incentives (small cash awards, gift prizes, raffle opportunities).

Further, steps are taken to ensure that panel members are not overburdened with survey requests. The primary sampling rule is to assign no more than one survey per week to members. This level of survey frequency helps to keep panelists engaged as part of the panel. On average, most KN panelists participate in about two surveys a month.

KN operates a Panel Relations program to encourage participation and member loyalty. Members can enter special raffles or be entered into special sweepstakes with both cash and other prizes to be won.

Response Rates

As a member of the American Association for Public Opinion Research, KN follows the AAPOR standards for response rate reporting. However, the AAPOR standards were not established for web panels.

KN survey scientists, Mario Callegaro and Charles DiSogra, recently published an article in *Public Opinion Quarterly* to provide a standard for web panel response rate calculations. See Callegaro and DiSogra (2008) for examples of response rates calculated for KnowledgePanel surveys and for details on the formula.

Statistical Weighting

KnowledgePanel® sample begins as an equal probability sample that is self-weighting with several enhancements incorporated to improve efficiency. Since any alteration in the selection process is a deviation from a pure equal probability sample design, statistical weighting adjustments are made to the data to offset known selection deviations. These adjustments are incorporated in the sample's base weight.

There are also several sources of survey error that are an inherent part of any survey process, such as non-coverage and non-response due to panel recruitment methods and to inevitable panel attrition. These sources of sampling and non-sampling error are addressed using a panel demographic post-stratification weight as an additional adjustment.

However, prior to this adjustment, a separate sample of Spanish-speaking Latino panel members are weighted so as to be merged into the overall panel. This language-specific group is recruited through a geographically targeted dual frame sample that is screened for Spanish-language dominant households. The weighting of this unique sample involves a Spanish-language base weight that incorporates several adjustments including ones that address geographic frame and home language usage. The panel demographic post-stratification weight is then calculated for all panel members and proportionally adjusts for the merged Spanish-speakers.

References

Callegaro, Mario & DiSogra, Charles (2008). Computing Response Metrics for Online Panels. *Public Opinion Quarterly*. 72(5) pp. 1008-1031.

Other methodological papers related to KnowledgePanel® are available at <http://www.knowledgenetworks.com/ganp/reviewer-info.html>.