An Overview of Capabilities and Methodological Research Conducted by the Government and Academic Area, Knowledge Networks

August 20, 2003
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The Government and Academic Area of Knowledge Networks conducts survey research for a broad range of researchers from universities, Foundations, Federal agencies, non-profit organizations, pharmaceutical companies, litigation support, and political polling organizations.

Below are materials describing Knowledge Networks' capabilities for supporting survey research using the web-enabled panel and a summary of methodological research.   Not discussed in this document but available upon request is information regarding capabilities for conducting telephone-based survey research.

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Preferred citation: Dennis, J.M. 2003. An Overview of Capabilities and Methodological Research Conducted by the Government and Academic Area, Knowledge Networks.   Menlo Park, CA: Knowledge Networks.

Background on the Web-Enabled Panel

The Knowledge Networks (KN) panel-based approach provides core capabilities for multimedia interviewing, cost-effective access to rare subpopulations, longitudinal research, and rapid delivery of survey data. While these are core capabilities resulting from our research infrastructure, the statistical foundation of the research panel stems from the application of probability-based sample selection methodologies to recruit panel members. The KN web-enabled panel is the only available method for conducting Internet-based survey research with a nationally representative probability sample (Couper, 2000; Krotki and Dennis, 2001).

The Knowledge Networks Panel, recruited randomly through Random Digit Dialing, represents the broad diversity and key demographic dimensions of the U.S. population. The web-enabled panel tracks closely the U.S. population on age, race, Hispanic ethnicity, geographical region, employment status, and other demographic elements. The differences that do exist are small and are corrected statistically in survey data (i.e., by non-response adjustments). The web-enabled panel is comprised of both Internet and non-Internet households, all of which are provided the same equipment for participation in Internet surveys. Please see the Appendix for a comparison of the demographic characteristics of the web-enabled to population benchmarks.

There are four main factors responsible for the representativeness of the web-enabled research panel. First, the panel sample is selected using list-assisted random digit dialing telephone methodology, providing a probability-based starting sample of U.S. telephone households. Second, the panel sample weights are adjusted to U.S. Census demographic benchmarks to reduce error due to noncoverage of nontelephone households and to reduce bias due to nonresponse and other nonsampling errors. Third, samples selected from the panel for individual studies are selected using probability methods. Appropriate sample design weights for each study are calculated based on specific design parameters. Fourth, nonresponse and poststratification weighting adjustments are applied to the final survey data to reduce the effects of nonsampling error (variance and bias).

KN provides households in the panel with free Web access and an Internet appliance, which uses a telephone line to connect to the Internet and uses the television as a monitor. In return, panel members participate in 10- to 15-minute Internet surveys three to four times a month. The panel does not respond significantly differently over time to surveys than more "naïve" survey respondents with less tenure on the panel (Dennis, 2001). Survey responses are confidential, with identifying information never revealed without respondent approval. When surveys are assigned to panel members, they receive notice in their password protected e-mail account that the survey is available for completion. Surveys are self-administered and accessible any time of day for a designated period. Participants can complete a survey only once. Members may leave the panel at any time, and receipt of the WebTV and Internet service is not contingent on completion of any particular survey.

With the web-enabled research panel as the foundation, Knowledge Networks is a full-service research provider with capabilities for customer Internet surveys, public policy and attitudinal research, concept and segmentation research, moderated online focus groups, market sciences and analytics, and statistical weighting and estimation.

The current web-enabled research panel consists of approximately 40,000 adults actively participating in research.

Publications Using Data Collected by Knowledge Networks

Knowledge Networks survey data were used for a Research Triangle Institute study published in the Journal of the American Medical Association. The study, entitled "Psychological Reactions to Terrorist Attacks: Findings from the National Study of Americans' Reactions to September 11," provides estimates for post-traumatic stress disorder for the New York City and Washington DC areas, as well as nationally (Schlenger et al, 2002).

Knowledge Networks data were used for a second article in <u>Journal of the American Medical Association</u>. Entitled "Nationwide Longitudinal Study of Psychological Responses to September 11," the article is based on three waves of data collection collected from a nationally representative cohort of U.S. adults first surveyed in late September 2001 on their stress, coping, and anxiety reactions to the 9/11 attacks (Silver et al, 2002). This cohort, which will be followed for the next 2 to 3 years, represents the only longitudinal sample for tracing the long-terms psychological effects of 9/11. Silver et al report that 17 percent of the US population outside of New York City reported symptoms of September 11–related posttraumatic stress 2 months after the attacks and 5.8% did so at 6 months.

In addition, and a third study based on KN data has been accepted for publication in <u>JAMA</u>.

KN-collected data have also been used in publications in <u>Health Services Research</u> (Harris, forthcoming), <u>Personality and Social Psychology Bulletin</u>, (Skitka and Mullen, 2002) and the <u>Journal of Personality and Social Psychology</u> (Skitka et al, 2002).

Methodological Research

A key feature of the panel design is an ability to estimate nonresponse bias by, first, conducting nonresponse followup studies with panel nonrespondents and second, by analysis of the profile data warehouse containing information on currently active and attrited panel members. Below we summarize recent research in both areas, and provide notes on a benchmarking and mode comparison studies.

Research from Mode Effects Studies

In collaboration with the Research Triangle Institute, KN has conducted two nonresponse followup studies.   The most recent nonresponse followup study, *The Survey of Civic Attitudes and Behaviors After 9/11*, provides for the first time an opportunity to distinguish between mode effects (telephone versus Internet) and nonresponse bias in the research panel. The study's authors are examining the extent to which panel recruitment and other research panel nonrespondents have different attitudes than active panel members when controlling for mode of data collection. These survey data are currently being analyzed and have not yet been reported. However, preliminary analyses indicate that the mode of data collection is a substantially more important factor than sample origin in explaining variation in responses.   Previous research from the RTI *Survey on Health and Aging* also examined the effect of nonresponse on the representativeness of the panel sample and on substantive responses. The authors observed from this research, which involved telephone interviews with classes of panel recruitment nonresponders and an Internet survey of panel members, that "the nonresponse follow-up was useful in improving the response rates to the survey, but in terms of improving the representativeness of the sample, it appears the nonresponse follow-up was not necessary" (Wiebe, 2001, p. 11). The authors also noted that the substantive measures exhibited "little change as [data] from each panel recruitment group is added" to the estimates. However, the authors noted that the results are not conclusive, citing that the samples sizes for the nonresponse followup groups were small compared to the size of the Internet sample. Finally, recent unpublished research sponsored by Knowledge Networks, the Chicago Council on Foreign Relations, and the Program on International Policy Attitudes of the University of Maryland is illustrative of the comparability of the Knowledge Networks data in a three-way mode effects study conducted in the summer of 2002 (in-person, RDD telephone, and KN). More detailed information is provided below on these and other studies.

The Ohio State University Mode Effects Study

A path-breaking study by Jon Krosnick and LinChiat Chang (2001) of Ohio State University evaluated the Knowledge Networks methodology. The researchers commissioned a set of side-by-side surveys using a single questionnaire to gauge public opinion and voting intentions regarding the 2000 U.S. Presidential Election from national samples of American adults.

Data were collected by three organizations: The Ohio State University Center for Survey Research (CSR), Knowledge Networks (KN), and Harris Interactive (HI), the volunteer web panel. HI respondents joined a panel after seeing and responding to invitations to participate in regular surveys. All respondents completed a baseline survey in Summer 2000 for the collection of political attitude and opinion data. Immediately after the November 2000 election, a follow-up survey collected voter behavior data. Below are selected findings:

- **Survey Completion Rates:** KN had a far higher survey completion rate than HI. The completion rates for the baseline and follow-up surveys were 70% and 82% for KN, compared to 18% and 45% for HI. The completion rate for the RDD survey is not available; the overall response rate on the baseline RDD survey was 43%.

- **Demographic Characteristics of Respondents:** The RDD and KN respondents were twice as close to matching the general population as HI's respondents. On average, RDD and KN's respondents were 4.0 and 4.3 percentage points at variance with the Census estimates, compared to 8.7 percentage points for HI.

- **Representativeness of Respondents' Attitudes and Behaviors:** HI's responses were more skewed on key opinion and behavior questions. HI's respondents were more likely to have voted in the election (90.9% versus 74.4% for RDD and 70.2% for KN), were much more knowledgeable about politics (answered 77% of all factual questions correctly versus 53% for RDD and 62% for KN), and more frequently preferred third-party political candidates (of non-voters, 24.3% favored third-party candidates, compared to 16.4% for RDD and 15.6% for KN).

The complete report also addresses measurement reliability and "non-differentiation" of responses, showing that Internet-enabled data collection leads to a higher degree of reliability compared to RDD.

Krosnick and Chang conclude that Internet-based data collection is a "viable approach to conducting representative sample surveys," but that this approach compromises sample representativeness more when volunteers are used (as in the example of Harris Interactive).

The Survey on Health and Aging

Th year 2000 study (see Wiebe, 2001) conducted by Knowledge Networks for Research Triangle International was the first substantial methodological research related to nonresponse bias and the calculation of a weighted response rate in the KN panel context. The study design involved first the administration of an attitudinal survey on HIV stigmatization to a large sample of KN panel members while, in the second stage, a subset of the same survey was conducted by telephone survey with random subsamples of selected panel nonresponse groups. This allowed for the comparison of self-reported attitudes of current panel members (collected on the Internet) and persons that did not join the KN panel or else did not participate in the web version of the survey (collected by telephone).

This study, while important, suffered from two key deficiencies. First, the sample size of the nonresponse followup study was too small to yield robust estimates of nonresponse bias. Second, the study design did not support isolating the effects of sample composition versus the effects of data

collection mode. As a result, the results of this study, while encouraging, are best regarded as exploratory and inconclusive.

The authors concluded that the nonresponse followup survey did not result in improving the quality of the interviewed sample in terms of demographic representativeness. Moreover, the authors concluded that the incorporation of the nonresponse followup interviews had only a marginal impact on the frequency distributions of the survey responses.

The RTI/Odum Institute Study

A sample and mode effects study was conceived by RTI researchers in the 'Survey on Civic Attitudes and Behaviors After 9/11,' which was implemented by KN in January through early March 2002. This study, which was conducted in conjuction with the University of North Carolina Odum Institute, successfully addressed the deficiencies of the Survey on Health and Aging by increasing the size of the sample for telephone-based nonresponse followup and by also including a control group -- a telephone survey of a random sample of KN panel members. For the first time, the study design supported the isolation of sample effects from mode effects in the context of the KN panel. The control group was theorized to be critical for understanding the extent to which response differences can be attributed to the mode of data collection, as in the case of recency effects (e.g., last-item bias) and social desirability effects in the case of telephone interviews.

The survey questionnaire had several modules of interests: ratings of Bush and Gore, attitudes toward terrorism, the adequacy of governmental response to bioterrorism and terrorism more generally, attitudes toward what the government should be doing and would do in the event of a terrorist attack, civic participation and civic values questions, and background questions on religious faith and other aspects.

The analysis below is based on grouping the interviews into three categories: interviews with panelists by web (n=3,627), interviews with panelists by telephone (n=300), nonresponse followup survey interviews by telephone (NRFUS) with non-panelists or those that did complete the web survey (n=600). Note that the control group consists of 300 interviews of KN panel members that were administered the questionnaire by phone instead of the web, allowing for a comparison of their responses to their fellow KN panel members that participated on the web and to others that are not part of the KN panel (n=500) or else did not respond to this particular survey (n=100). The NRFUS group is analyzed in one block to allow for sufficient sample size to detect differences between sample groups.

A visual inspection of the crosstabulations of survey responses by sample group shows an strong pattern wherein the data from the telephone surveys are more similar than the data sharing the same sample origins (i.e., the panel), even though half the telephone interviews are with KN panel members and half are with those that are not on the panel or else would not participate in the web research.

To investigate further, we attempted to distinguish the effects of sample origin and mode. For questions producing categorical variables, ordinal regression was employed to evaluate the respective roles of sample origin and mode of data collection in accounting for variance in survey responses, while controlling for respondents' age, gender, education status, and race/ethnicity. The table below presents the results of the unweighted ordinal regression model for survey questions of this type, excluding only those few items intended for the North Carolina oversample and non-ordered and continuous variables.   For questions producing continuous variables, ANOVA tests were performed for the same purpose. For purposes of brevity, only the results from the categorical variables are presented here but are available upon request and are supportive of the results shown below.

For the ordinal regression model, the main explanatory variables, sample origin and mode of data collection, were coded such that when both are zero, the case is from the control group.   The data are not weighted.

The results are that there are many more instances of the mode of data collection being significantly related (p-value at 0.05 or less) than instances where sample origin matters. In total, of the 38 questions analyzed with categorical variables, in 30 questions the mode of data collection is a statistically significant predictor of survey response, compared to 3 questions where there is statistical evidence that sample origin is important.

On questions of civic values and actions, in particular, there are particularly strong indications that the telephone survey responses were influenced by respondents' motivations to present themselves in a positive light to interviewers.

Ordinal Regression of Mode of Data Collection and Sample Origin on Survey Responses

Questions	Mode (Phone)			NRFUS (non-NRFUS)		
	Estimate	Wald Statistic	Sig.	Estimate	Wald Statistic	Sig.
Q1. Grade Pres. Bush as President	-0.07	0.4	0.52	-0.07	0.3	0.61
Q2. Grade Pres. Bush on terrorism	-0.03	0.1	0.82	-0.25	3.1	0.08
Q3. How worried about terrorism	0.28	5.9	0.02	0.23	2.9	0.09
Q4. Agree/Disagree: Bioterrorism is most important problem	0.92	67.8	<0.001	0.004	<0.01	0.98
Q5a. Bioterrorism: CDC 1	0.67	0.1	0.79	-0.26	0.7	0.42
Q5b. Bioterrorism: CDC 2	0.92	52.7	<0.001	-0.04	0.09	0.76
Q5c. Bioterrorism: CDC 3	0.86	24.9	<0.001	-0.21	1.0	0.32
Q5d. Bioterrorism: CDC 4	1.0	9.2	0.002	-0.55	1.5	0.22
Q5e. Bioterrorism: CDC 5	1.46	17.9	<0.001	0.07	<0.01	0.86
Q5f. Bioterrorism: CDC 6	1.29	43.5	<0.001	0.08	0.1	0.73
Q5g. Bioterrorism: CDC 7	-1.37	1.8	0.18	-0.49	0.2	0.67
Q6a. Sought info on anthrax from radio	-0.10	0.6	0.44	0.12	0.7	0.41
Q6b. Sought info on anthrax from web	1.0	49.3	<0.001	0.57	10.8	0.001
Q6c. Sought info on anthrax from hotlines	1.43	19.6	<0.001	-0.20	0.4	0.54
Q6d. Sought info on anthrax from own TV	0.89	50.7	<0.001	0.08	0.3	0.56
Q6e. Sought info on anthrax from own doc	0.95	18.8	<0.001	-0.20	0.7	0.42
Q6f. Sought info on anthrax from local gov	1.35	38.7	<0.001	-0.07	<0.1	0.78
Q6g. Sought info on anthrax – other	-0.37	8.5	0.003	-0.20	1.8	0.18
Q7. Most trusted spokesperson on terrorism	0.03	0.07	0.79	0.59	0.2	0.66
Q11. How often discuss politics	0.36	10.1	0.001	-0.11	0.7	0.39
Q12. How often discuss community issues	0.36	9.5	0.002	-0.12	0.8	0.37
Q13. How worried about war in Middle East	-0.22	3.7	0.05	0.27	3.9	0.47
Q18. How often neighborhood sharing	0.22	4	0.04	0.02	<0.01	0.91
Q19. How often helped neighbor	0.64	32.3	<0.001	0.08	0.4	0.53
Q21. Happiness in neighborhood	0.53	22.3	<0.001	-0.26	3.7	0.05
Q22. Pride in neighborhood	0.70	40.9	<0.001	-0.05	0.1	0.72
Q23. Sense of belonging in neighborhood	0.77	49.3	<0.001	-0.08	0.4	0.52
Q24. Neighborhood gives pleasure	0.75	46.6	<0.001	-0.07	0.3	0.58
Q25. Able to rely on neighbors	0.84	61.0	<0.001	-.03	0.06	0.80
Q26a. Trust in others	1.14	110.1	<0.001	0.08	0.44	0.51
Q26b. Likes to mix with others	0.78	52.2	<0.001	-0.49	14.9	<0.001

In conclusion, the RTI/Odum Institute study provides the clearest indications to date of the relative contributions of mode of data collection and sample quality to response differences. The design of the experiment enabled for the statistical control of sample – nonresponders versus responders --- and for mode of data collection simultaneously. In the statistical analyses, the mode of data collection played a significant role about 10 times more often than sample origin.

Effects of Panel Attrition on Survey Estimates

We have also examined whether panel attrition is affecting the data we provide to customers. The results were reported by Dennis (Dennis, 2003). Our analyses of survey data suggest that substantive survey results are minimally affected by panel attrition. We compared the weighted estimates for active panel members versus all active and attrited panel members for 30 substantive survey variables (n=15,000 to 48,000 responses) from our health and political profile surveys. Large differences in these estimates would indicate that attrited panel members reported different responses than active panelists. The median absolute difference across the variables is 1.6 percentage points weighted and 2.1 percentage points unweighted, indicating that the loss of attrited panel members is having a minor impact on survey estimates. The full paper is available at www.knowledgenetworks.com/ganp/aapor.2003.

Benchmarking Analyses

Benchmarking analyses using the CDC's National Health Interview Survey (2000) were conducted to determine the comparability of panel estimates on health-related measures. The analysis is based on the NHIS 2000 and data from 25,000 Knowledge Networks interviews conducted in 2000-2001. As shown in the table below, the results are similar on the selected measures: current smoking, diabetes, ulcer, migraine headaches, and stroke. The average difference in the results is 1.0 percentage point. The NHIS is conducted in-person using a high-quality area probability sample frame of telephone and nontelephone households.

Comparison of the KN Panel to the NHIS for
Health-Related Estimates

Conditions	KN (%)	NHIS (%)	Difference (in % points)
Current Smoke	24.7	23.3	1.4
Diabetes	7.1	6.7	0.4
Ulcer	7.1	7.3	-0.2
Migraine	12.2	14.9	-2.7
Stroke	1.8	2.2	-0.4
Overall Absolute Average Difference			**1.0**

In a more extensive analysis, Baker (Baker et al, 2003) from Stanford University and the Department of Veterans Affairs compared health-related estimates derived from data collected for them by Knowledge Networks to measures obtained from other sources, such as the widely respected National Health Interview Survey (NHIS). The NHIS is conducted in-person using a high-quality area probability sample of telephone and nontelephone households. The authors performed several analyses with the group of responders to their survey to investigate the extent to which observable characteristics of the survey

sample are comparable to characteristics of the U.S. population as measured on other highly regarded national surveys. First, they examined the self-reported prevalence rates of hypertension, heart problems, cancer, and diabetes, all of which are measured in our survey and in the 2000 NHIS. For the NHIS data, they limited analyses to respondents who were 21 and over for comparison with the population surveyed. They also used only those NHIS respondents who are in the "sample adult" file, the source of the self-reported health condition information. The data are weighted. The reported prevalence rates, concluded the authors, are generally similar for the conditions studied, as shown below. Please see the report for the full information.

Comparison of KN Survey Estimates from the Stanford/VA Study to Estimates from Other Surveys

Topic	Survey	Questions Structure	N	%
Hypertension	Stanford	"Has a doctor or other health care provider ever told you that you have high blood pressure or hypertension?"	8930	29
	NHIS	Have you ever been told by a doctor or other health professional that you had hypertension, also called high blood pressure?"	31017	24
Heart Problems	Stanford	"Has a doctor or other health care provider ever told you that you have had a heart attack, or have coronary heart disease, angina, heart failure, or other heart problems?"	8917	11
	NHIS	Four separate questions: "Have you ever been told by a doctor or other health professional that you had…" "coronary heart disease?", "angina, also called angina pectoris?", "a heart attack (also called myocardial infarction)?", "any kind of heart condition or heart disease (other than the ones I just asked about)?" A "yes" answer to any of the four defines a "yes" for the category heart problems.	31014	11
Cancer	Stanford	"Has a doctor or other health care provider ever told you that you have cancer?"	8914	6
	NHIS	"Have you ever been told by a doctor or other health professional that you had cancer or a malignancy of any kind?"	31029	7
Diabetes	Stanford	"Has a doctor or other health care provider ever told you that you have diabetes or high blood sugar" with response options "yes," "no," and "borderline." Figure given counts "yes" or "borderline"	8912	12
	NHIS	"[if female, "other than during pregnancy,"] Have you ever been told by a doctor or health professional that you have diabetes or sugar diabetes" with response options "yes," "no," and "borderline" Figure given counts "yes" or "borderline"	31030	8

Baker et al also compared rates of use of health care providers using the same sample restrictions and weighting, and reported that again rates of health care provider office visits and emergency room visits are generally similar. The authors examined the number of hospitalizations, visits to mental health professionals, visits to chiropractors, and smoking status, for which concordance with government estimates were high. In a comparison of estimates about self-reported health status, the authors did find somewhat fewer people in the KN sample reporting their health as "excellent" and somewhat more reporting their health as "good" compared to the NHIS.

Past Uses of the Web-Enabled Panel

The projects we have implemented for universities, government, and other sponsors of high-quality research tend to take advantage of one or more of four key capabilities of the research panel: (i) multimedia/graphical questionnaires, (ii) cost-effective access to rare subpopulations, (iii) longitudinal followup, and (iv) rapid delivery of survey data. For detailed information on best uses of the research panel, please see the case studies of representative projects at http://www.knowledgenetworks.com/ganp. Examples are described there of the effective use of multimedia for contingent valuation and other studies, for sampling U.S. military Veterans and parents of young children, and for longitudinal studies where the followup interviews are scheduled in the range of 1 month to 3 years after the baseline survey. Examples of rapid data delivery are noted. Over the past year and a half, the average study period is 33 days (data delivery date minus field start date) for projects implemented by the Government and Academic Research Area.

Knowledge Networks has conducted several federally-sponsored research projects in the area of contingent evaluation research. Descriptions of some of these projects are below.

RTI: EPA Mortality Risk Study

Investigators at the Research Triangle Institute (RTI) commissioned Knowledge Networks to conduct a pretest for a survey regarding preferences and attitudes towards mortality risks. The study is sponsored by the U.S. Environmental Protection Agency's National Center for Environmental Economics. The researchers were specifically interested in developing more precise and reliable estimates of the benefits of reducing mortality risks, particularly from fatal cancers. The effective presentation of cognitively taxing information and choices on such a sensitive topic was the main methodological challenge facing Knowledge Networks for this study.

The heart of the survey was having the respondents choose among alternatives that varied several properties of the central variable within a series of forced-choice items. The choice screens were graphically arrayed within matrices, so respondents could evaluate and choose among the alternatives. Respondents saw several screens of background information with different information depending on the experimental condition to which they were assigned. Each of the screens presented a timeline, which showed the length of time someone would live after experiencing various risks (e.g., a fatal car accident, developing stomach cancer, etc.). Notably, the timelines present on these screens were customized, based on each respondent's current age and their position in the experimental matrix. Respondents read the information on the screen while they listened to an audio file that automatically played the same information to increase their comprehension of each informational screen. The multimedia capability of the interactive TV protocol made this project possible.

Duke-Harvard: The EPA Water Quality Study

Researchers at Duke University and Harvard University commissioned Knowledge Networks to conduct a general population web-enabled panel survey, funded by the U.S. Environmental Protection Agency, to determine the value individuals place on clean lakes and rivers in the United States. The study employed contingent valuation methodology to examine the amount of money individuals are willing to pay for clean lakes and rivers in their region. Compared to other methodologies, contingent valuation methodology is generally quite challenging for respondents because it requires them to comprehend and remember significant amounts of information at the same time they are making difficult choices among alternatives that have several simultaneously varying features (e.g., cost and pollution differences across alternatives). Knowledge Networks used color graphics to reduce respondents' burden by making the choice process less cognitively taxing. For each choice screen, respondents chose among three alternatives, with each alternative and its associated features arranged vertically within a matrix. The survey effectively used color and layout to organize the labels and features to make it easy for respondents to choose their most preferred alternative. The choice process was assisted by a design innovation -- for each successive choice in a given series, features from previous screens were displayed. Knowledge Networks' graphics capabilities were employed because it allowed new choice features to appear on the screen while information that had appeared on previous screens were displayed in muted text. The within-survey completion rate was 81%, and the survey data were delivered for analysis to the principal investigators 23 days after the survey was fielded.

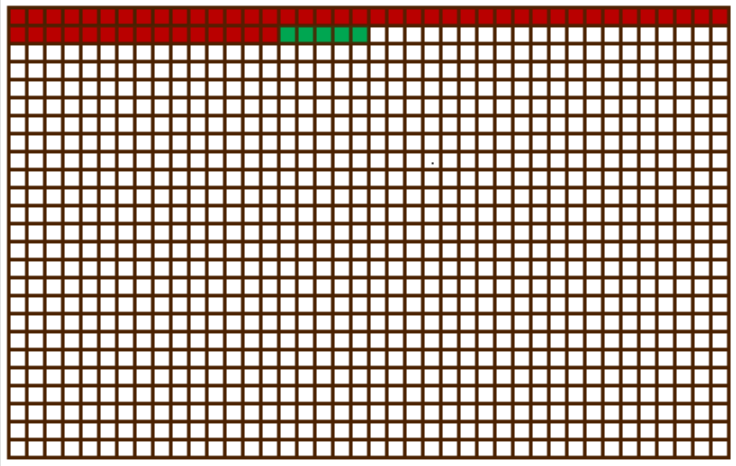Stratus Consulting: EPA Survey of Reducing Fatal Risks

On behalf of Stratus Consulting, Knowledge Networks conducted a web-enabled panel survey about preferences on issues concerning fatal risks. Specifically, the study, funded by the Environmental Protection Agency, assessed the factors that people deem important when making decisions about risk of future death by different causes (e.g., cancer, automobile accident, heart attack, etc.), and determined the trade-offs people make among the factors to arrive at their decisions. The study was based on conjoint analysis methodology, in which respondents make a series of forced-choice decisions about several fatal risks that occur at various points in the future. Knowledge Networks used color graphics to organize choice alternatives on the screen. To increase comprehension of the more complex choices, Knowledge Networks included audio files that explained the choice alternatives while respondents reviewed the alternatives on the screen.

Prior to completing the choice questions, respondents were presented with several screens of matrices containing death statistics that were needed to make informed choices later in the survey. The statistics presented in the matrices were customized for each respondent according to their age and gender. To ensure respondents adequately comprehended the statistics (e.g., annual reduction in individual risk by wear seatbelts is 1 in 10,000), respondents were asked questions about each matrix. In addition, Knowledge Networks included several graphical representations of selected statistics to assist respondents in correctly interpreting the statistics (see the example below).

The field period for this survey was 19 days, yielding a within-survey completion rate of 81%. Data were delivered for analysis to the principal investigators 2 days after the field period ended.

Screen Display of Risk Reduction Question

Key Staff at Knowledge Networks

The key staff and their roles are described below. Dr. Dennis provides technical oversight of the survey design and all deliverables. Ms. Huggins provides technical direction for sampling, weighting, and estimation. Ms. Dykeman serves as Project Director with reporting responsibilities, and manages the questionnaire programming, fielding, and data processing for the project with the assistance of Mr. Li.

J. Michael Dennis, Ph.D.
Vice President and Managing Director

Dr. Dennis is responsible for managing the Government and Academic Area for Knowledge Networks. Joining Knowledge Networks in February 2000, he has been responsible for managing the Survey Research Department, with oversight of panel recruitment, survey sampling, maximizing response rates, and survey methods research. More recently, Dr. Dennis has managed numerous surveys for academic and Foundation-based customers and for the Research Triangle Institute. A frequent presenter at the annual meeting of the American Association for Public Opinion Research, his current areas of methodological inquiry are nonresponse bias, panel conditioning, and data collection mode effects. Prior to joining Knowledge Networks, Dr. Dennis was a Senior Scientist at Abt Associates, where he managed several large-scale Federal Surveys and was Associate Project Director for the National Immunization Survey (CDC). Dr. Dennis has also been active in the area of medical ethics and biomedical politics, having served on the Ethics Committee of the United Network for Organ Sharing and written a dissertation on The Politics of Kidney Transplantation.

William C. McCready, Ph.D.
Vice President, Client Development

Dr. McCready is responsible for working with academic, government, and non-profit clients to help them design projects that use the Knowledge Networks Panel. In 2000, he worked with the Bureau of the Census and the University of Pennsylvania's Annenberg School of Public Policy on two large national projects for Knowledge Networks. He is currently involved in developing partnerships with academic and government research offices to utilize the national Knowledge Networks panel in a variety of applications. Dr. McCready has worked in the survey research field for more than 35 years, both as the first Program Director at NORC at the University of Chicago and more recently as Director of the Public Opinion Lab at Northern Illinois University. He directed the CDC-funded Illinois BRFSS as well as projects for the Ford Foundation, the Smithsonian Institution, NIAAA, and McDonald's Corporation and is a past member the National Academy of Science's Committee for a National Urban Policy.

Vicki Huggins
Senior Director, Statistics

Ms. Huggins is responsible for the development and implementation of sample design, weighting, and variance estimation methods for the Knowledge Networks panel and all client projects. Ms. Huggins has over eighteen years of experience in the areas of sample design, complex weighting and estimation, variance estimation and survey methods research. Subject matter areas include income, program participation, health insurance, child well-being, labor force, agriculture and childhood immunization. Ms. Huggins held key management positions with several of the Government's largest survey/censuses including the National Immunization Survey, the Current Population Survey, the Survey of Income and Program Participation, the Survey of Program Dynamics and the Census of Agriculture. Ms. Huggins worked for fifteen years at the U.S. Census Bureau with increasing levels of management and oversight of statistical methods and approximately three years with Abt Associates Inc. as the program director for CDC's National Immunization Survey.

Kathy Dykeman
Project Director

Ms. Dykeman is responsible for designing and managing survey projects, and in coordinating with the

Operations Department for survey sampling, questionnaire programming, and quality control. Her experience includes management of large-scale survey projects that require expeditious data dissemination while maintaining strict cost and quality controls. Prior to joining Knowledge Networks in February 2002, she worked for Voter News Service (VNS), an election consortium operated by ABC

News, the Associated Press, CBS News, CNN, FOX, and NBC News, that conducts election day exit polls, tabulates the unofficial election night results, and provides analysis of voting behavior used during election night broadcasts. During her six-year tenure at VNS, Ms. Dykeman over time assumed responsibility for increasingly strategic tasks, including the design and implementation of computer data collection systems, field management programs, and quality control measures for national and statewide exit polls of voters. In addition, she managed an office and field staff, which conducted more than 150,000 interviews during a single election throughout the 1998 and 2000 general and primary season. A frequent participant at the annual meeting of the American Association for Public Opinion Research, her most recent professional research and paper presentation dealt with increasing response rates and attenuating survey error during exit polling operations. Ms. Dykeman received her B.A. in Political Science from the University of Cincinnati and has participated in the summer institute of survey research at the Institute for Social Research (University of Michigan) and completed graduate coursework in advanced statistics at New York University.

Rick Li
Senior Research Analyst

Mr. Li is responsible for managing and executing projects in the Government and Academic Area. His responsibilities at Knowledge Networks include designing questionnaire for web-based surveys, coordinating with Operations to execute surveys, data cleaning and data manipulation, and writing reports. He has successfully managed survey research projects for Stanford University, the Research Triangle Institute, and the Department of Veterans Affairs. He is proficient in statistical programming in SPSS and SAS. Prior to joining Knowledge Networks, he worked extensively with survey data as a research analyst for Meta Research and Godbe Research and Analysis. Mr. Li received his M.A. from the School of Journalism and Communication at Ohio State University, concentrating on survey research methodology, statistical analyses, and media research.

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Appendix: Knowledge Networks Panel Demographic Characteristics Compared to the U.S. Census

Characteristics		U.S Census (CPS, Feb. 2002)	All Profiled Members (June 2002)	Active Members (June 2002)	Gov. SubPanel of 5,000 HHs (June 2002)
Gender	Male	48.0%	48.0%	47.9%	47.2%
	Female	52.0%	52.0%	52.1%	52.8%
Age	18-29	21.7%	21.6%	21.3%	16.3%
	30-44	31.1%	31.1%	31.0%	29.4%
	45-59	25.8%	27.0%	27.0%	28.7%
	60+	21.4%	20.3%	20.7%	25.6%
Race/Ethnicity	White	72.7%	72.8%	72.9%	75.4%
	Black	11.6%	11.5%	11.4%	9.6%
	Other	4.7%	4.8%	4.8%	4.7%
	Hispanic	11.0%	10.9%	10.9%	10.3%
Employment Status	In labor force	64.0%	68.3%	65.2%	62.9%
	Working full time	53.2%	57.4%	53.5%	52.3%
	Working part time	10.8%	10.9%	11.7%	10.6%
	Not in labor force	36.0%	31.7%	34.8%	37.1%
Marital Status	Married	57.3%	60.5%	61.1%	64.5%
	Not married	42.7%	39.5%	38.9%	35.5%
Housing ownership	Own	N/A	69.5%	66.2%	71.2%
	Rent/Other	N/A	30.5%	33.7%	28.8%
Household income	Under $10,000	7.5%	6.5%	8.1%	6.5%
	$10,000 - $24,999	18.5%	15.7%	18.1%	16.8%
	$25,000 - $49,999	29.2%	35.4%	34.8%	33.7%
	$50,000 - $ 74,999	19.9%	23.3%	21.2%	22.6%
	$75,000 or more	24.9%	19.1%	17.8%	20.4%
Education	Less than HS	16.4%	16.7%	16.7%	15.4%
	High School	32.0%	32.3%	32.3%	32.4%
	Some college	27.4%	27.0%	27.0%	25.9%
	College	24.3%	24.0%	24.0%	26.3%
Region	Northeast	19.1%	19.3%	19.2%	22.0%
	Midwest	22.8%	22.7%	22.9%	18.0%
	South	35.6%	35.4%	35.3%	35.5%
	West	22.6%	22.6%	22.6%	24.5%

*CPS data are weighted. KN data are weighted by panel design weights and raking variables employed for survey sampling.