

Notes on Knowledge Networks Methodology  
M. Rosenfeld  
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The How Couples Meet and Stay Together (HCMST) study uses Knowledge Networks (KN) as the survey firm to gather the data. The KN survey is a Web survey, but unlike traditional web surveys the KN panel is a nationally representative probability sample (Couper 2000), which is to say that the KN panel is designed to overcome the coverage bias inherent in other Web surveys which rely on users who already have Internet access. The KN panel participants are initially contacted through a nationally representative Random Digit Dialing (RDD) telephone survey. Respondents are then recruited into the panel, given a WebTV device, and asked to answer an initial demographic survey. In exchange for continued internet access, respondents answer regular online surveys (Tourangeau 2004). The response rate to individual survey modules, from subjects in the KN panel, averages more than 70%.

Because HCMST is a study of American couples which compares traditional to nontraditional couples, it is crucial to have a large enough sample of nontraditional couples in the survey to allow for statistically powerful tests. The large sample size (approximately 42,000) of the KN panel is the key advantage of KN for studying nontraditional families. The approximately 1,000 gay, lesbian or bisexual respondents in KN panel, who are already identified, is an order of magnitude larger than the number of gays, lesbians, or bisexuals available in any of the other major national surveys of family dynamics.

An NSF Funded project (award number 0215937) on psychological reactions to the terrorist attacks of 9/11/2001 used the KN panel because of its unique ability to oversample key groups (in their case, residents of New York and Washington, D.C.) and because of the inherent longitudinal nature of the KN panel (Schlenger et al. 2002). The large KN panel is crucial to overcoming what Berrens et al (2003) refer to as the "needle-in-the-haystack" sampling problem. The sample size of nontraditional family types in national surveys is usually too small for statistically powerful analysis, because of nontraditional families are relatively rare (Gates and Badgett 2006).

The fact that KN survey respondents participate in surveys regularly means that the basic demography of these respondents (including age, gender, education, income, living with children, urban residence, sexual identity, marital status, state of residence, employment status, religion, occupation) is already known. The structure of the KN survey, which already includes long term participation by subjects, is ideal for oversampling minority groups of various types and is ideal for large scale longitudinal survey at modest cost.

Answering questions online and at the respondent's chosen time and pace, as KN survey panelists do, has some inherent advantages over interviewer surveys. Fricker et al (2005), in an NSF funded study of survey modes, started with an RDD survey and gave respondents who had internet access the option of answering the questions online. Fricker et al found that the web respondents took more time answering the questions and were more likely to provide correct answers than phone respondents to basic knowledge questions about science even though the web respondents were no more educated than the phone respondents. In a telephone survey, respondents have to retain the question and the response choices in memory, a task which can present a substantial cognitive burden (Krosnick 1991). An online survey allows respondents to re-read the question and the choices until they understand the question and think they know the answer. Fricker et al concluded that the web survey format may have been

more conducive to thoughtful answers because the respondents controlled the timing and pace of the survey.

All survey modes are subject to some degree of what Krosnick (1991) refers to as “satisficing,” that is respondents offering “don’t know” or the first remotely plausible answer because the respondent may be tired, bored, or impatient. Fricker et al (2005) suggest that properly implemented web surveys may be less vulnerable to satisficing than the more traditional RDD or in-person surveys (but see also Smith 2003).

As with every survey mode, the KN probability based web survey has its own structural limitations. Because there are more steps in the recruitment into the KN panel, there are more opportunities for attrition and associated attrition bias. If one includes every step of the process, from the initial RDD phone contact, agreement to join the panel, receipt of the WebTV, installation of the WebTV, initial online demographic survey, and finally online response to specific survey questions, the combined overall response rate is much lower than for RDD surveys alone (Tourangeau 2004). The very substantial issue of attrition bias can be controlled, however, because KN has information about the attrition group from the initial RDD contact (Couper 2000). Weights are applied to control for attrition bias. The question then becomes whether the weighted data from KN correspond sufficiently closely to other nationally representative datasets whose properties are well known. On this key question, the empirical evidence is positive.

Schlenger et al (2002) found that their weighted KN data were statistically indistinguishable from Current Population Survey (CPS) data for the same demographic categories. Berrens et al (2003), in an NSF funded study of survey modes (grant number 9818108), found that KN data yielded the same substantive inferences as data gathered in a more traditional RDD survey, and concluded that for many survey projects, KN would be a worthy replacement for more traditional survey modes. Lee (2006) found statistically significant differences between US population profiles derived from KN and from the CPS (and attributed the discrepancies to coverage bias in the KN panel), but the discrepancies were substantively modest: household size of 4.3 in CPS compared to 4.2 in KN, computer ownership of 80.9% in CPS compared to 77.5% in KN, and so on.

Another potential structural limitation of the KN panel is panel conditioning, resulting from the subjects being something like professional survey respondents for the approximately two years they are on the KN panel. Berrens et al (2003) found panel conditioning in the KN panel to be fairly minor.

The KN probability-sample-based web survey has both advantages and disadvantages, as every survey methodology does (Berrens et al. 2003; Couper 2000; Tourangeau 2004). For the project proposed here, the advantages of the KN survey are vital and unique: massive sample size which allows for inexpensive oversampling of key minority groups, and longitudinal panel study design which allows for follow-up with low marginal cost. New data collection is required for this study because the questions proposed cannot be fully answered with existing data sources.

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