# Using Cognitive Interviewing to Detect Privacy and Confidentiality Concerns

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#### **Abstract**

This paper explores how cognitive interviews can be used to gain insight on privacy and confidentiality concerns in factual surveys. In order to explore the benefits and limitations of this methodology in identifying such concerns, we present a case study that sought to understand living situations of respondents who listed in multiple places during the Census. Based upon respondents' reaction to questions in this survey, we tried to determine whether certain questions were perceived as too private and/or respondents had concerns that the confidentiality of their data had been breached. This paper examines how privacy and confidentiality concerns were discussed and identified through the cognitive interview. We examine situations, in which these types of concerns were uncovered, what types of probing were useful in uncovering them and situations where they remained uncovered within the interview itself. Recommendations are discussed pertaining to how to best study privacy and confidentiality concerns in cognitive interviews and the limitations of the methodology for this purpose.

**Key Words**: Privacy, Confidentiality, Cognitive Interviewing, Census

#### 1. Introduction

A survey organization needs to understand respondents' views on privacy and confidentiality in order to know how to address these issues when attempting to get them to respond to a survey. Perceived breaches of privacy and confidentiality can significantly affect respondents' attitudes and opinions towards organizations and the information that they are willing to provide to them. Although research exploring the relationship between attitudes towards surveying entities and future survey participation have yielded mixed findings (Singer, Mathiowetz, and Couper, 1993; Singer, Van Hoewyk, and Neugebauer, 2003; Larwood and Threntham, 2004; Miller and Walejko, 2010; Singer, Bates, and Van Hoewyk, 2011), these studies have all identified privacy and confidentiality concerns as central motivators for those respondents who choose not to participate. For example, Larwood and Trentham's (2004) study found that high privacy concerns, negative views on the Census Bureau's confidentiality practices, disapproval of data sharing, and a lack of willingness to provide social security numbers were reliable negative predictors of whether respondents returned their Census 2000 forms and provided geocodeable mailing addresses that could be used to determine the return status of their forms.

Obviously, nonresponse undermines a survey organization's effort to collect and produce accurate data in a timely and cost-efficient manner. As such, it is important to understand and

potentially resolve such issues that may thwart the organization's data collection efforts. Though cognitive interviewing often focuses on issues of comprehension, retrieval and/or response, it could also be a useful method for identifying and operationalizing privacy and confidentiality concerns that might be left otherwise unexplored. Questions that cognitive interviewing could shed light on include: what types of concerns arise during particular surveys or questionnaires—which issues are sensitive, what information is appropriate for the government to ask (and what is not) and what sort of precautions and guarantees of confidentiality do respondents understand that they have from these entities?

In order to examine the utility of cognitive interviewing in terms of identifying (and potentially suggesting remedies to resolve) such privacy and confidentiality issues, we explore a case study in which this method is used to gain insight on the concerns of respondents when responding to a questionnaire. The 2010 Targeted Coverage Follow-Up (TCFU) is a survey that focuses upon living situations of people who are suspected to have been counted multiple times in the census. In the cognitive testing of this survey, interviewers sought to determine if certain questions were perceived as too private or whether respondents had concerns that the confidentiality of their data had been breached. Since the TCFU survey is targeted at people who are suspected to have been duplicated in the census, it was important for interviewers to hone in on the particular duplicated person in question, without revealing to the respondent why only this person was being asked about or without sharing information that another respondent may have listed on their form (which could breach confidentiality).

This paper examines how privacy and confidentiality concerns were discussed and identified through the cognitive interview. We examine situations in which these types of concerns were uncovered, what types of probing were useful in uncovering them, as well as situations we suspected issues of privacy concerns that were not fully addressed within the interview and additional methods that may be necessary to fully understand the breadth of privacy concerns. This paper focuses on how to best use the cognitive interviewing methodology to uncover problems at the judgment phase, related to privacy and confidentiality concerns that cause a respondent to choose not to respond or to respond inaccurately.

## 1.1 Distinguishing Between Privacy and Confidentiality Concerns

For the purpose of this study, we define privacy concerns as concerns over whether or not the asking entity (e.g., Census Bureau; government) has the right to ask for the type of information that it asks for. If a respondent feels as though the Census Bureau does not have the right to know this information, he or she may feel as if his or her privacy was violated. This is important because if questions are perceived to be too private, respondents may opt-out by refusing to answer, responding with a "don't know" or lie to present themselves in a more socially-desirable fashion. While there are some questions deemed to be sensitive from the outset (illegal drug activity or sexual behaviors), we may not recognize other questions to be particularly sensitive when we initially ask them; without probing about these questions during cognitive interviews, we may have no way of identifying a particular question that will yield unreliable data (Willis 2005).

Willis (2005) emphasizes the importance of distinguishing between sensitive questions and sensitive answers, and their relationship to intrusive threat and threat of sanction, respectively (see also Lee, 1993). A sensitive question is one which is perceived to be sensitive at face value. An example relative to this case study would be asking if a respondent stayed with a boyfriend or girlfriend. This could be perceived to be private information and could pose an intrusive threat because the surveyor is asking for information they have no right to obtain in the respondent's mind. A sensitive answer may be the result of a question that seems not sensitive at face value, but to provide an honest answer might compromise the respondent's feelings of privacy and could lead them to feeling a threat of sanction. For example, if the surveyor asked how many people lived in the housing unit (a non-sensitive question at face value), but to tell the truth the respondent has to reveal that her household contains more people than the maximum capacity set by the landlord, she may feel a threat of sanction to answer honestly. This could be a sensitive answer to a non-sensitive question. Willis contends that cognitive interviewing can be used to assess the sensitivity of questions, but he has not addressed whether cognitive testing can be used to reveal issues surrounding sensitive answers or threat of sanction. This paper is particularly focused on identifying those issues with the cognitive testing method.

We define confidentiality concerns as any concern on the part of a respondent might have that his or her personal information has been (or will be) inappropriately shared with another individual or entity. Such issues of confidentiality serve to bolster or undermine the credibility of the agency conducting the survey. For data collected by the Census Bureau, all responses are guaranteed to be protected and kept in confidence by the Census Bureau, therefore if these promises are not kept, trust may be compromised and future responses may be withheld or censored. Though the focus of the paper is on privacy concerns, if the respondent doubts confidentiality, respondents may not provide the requested information, for fear of what will happen to it after it is provided.

#### 1.2 Cognitive Interviewing

Cognitive interviewing is a qualitative methodology that offers the ability to understand the cognitive process behind answers to survey questions. There are a variety of cognitive interviewing techniques—some are concurrent to the survey administration while as others are retrospective, only asking questions about the process at the very end. The TCFU study employed mostly retrospective probing with semi-scripted probes intended to cover certain pre-identified topics, while allowing the interviewer the flexibility to follow unanticipated problems that surfaced. The goal of this method is to best understand what the respondent was thinking when answering and how he or she interpreted the question. This information is used to help the researcher identify which questions could benefit from revision and how they might be revised.

Cognitive interviews are often focused on three of the four stages of the cognitive process model - respondent comprehension, information retrieval, and response (Cannell, Miller, and Oksenberg, 1982; Presser and Blair, 1994, Tourangeau, Rips and Rasinksi, 2000). The most common probes in cognitive testing are paraphrase and meaning probes, which elicit comprehension issues, and process probes, which elicit retrieval problems (Willis, 2005). Response issues are often observed by watching the respondents attempt to categorize their answers onto the available response categories. Judgment issues, that is, when the respondent

comes up with the appropriate response in their mind, but chooses a different answer based on sensitivity or social desirability, may go undiscovered in cognitive interviews because those issues persevere in the cognitive interview despite attempts to generate rapport with the respondent (see Willis, 2005 for noted difficulties with sensitive questions).

## 1.3 Case Study: Targeted Coverage Follow-Up (TCFU) Cognitive Testing

The TCFU study involved cognitive testing on a sample of respondents who had been identified as possible duplicates in the 2010 Census through a computer-matching algorithm. The objective of this research was to conduct cognitive testing of an experimental questionnaire, the Targeted Coverage Follow-Up (TCFU), to see if these potential duplicates could be resolved (Peytcheva et. al. 2012; Heimel and King 2012 for evaluation of the entire unduplication operation). In an earlier iteration of this study, respondents had expressed confidentiality concerns (described in greater detail below). Because of those concerns, this study was particularly focused on maintaining respondents' feelings of confidentiality. Because this questionnaire uses a more indepth series of questions than other similar interview instruments used at the Census Bureau (e.g., Coverage Follow-up, Census Coverage Measurement Person Interview, Census Coverage Measurement Person Followup), this cognitive test also looked for potential privacy concerns.

The goal of the census is to count each person once, only once, and in the right place. The Census Bureau estimated that 5.8 million people were counted twice in Census 2000 (Mule, 2002) that may have occurred for a number of reasons, such as a family who moved and filled out census forms for both addresses; a child in shared custody who was counted both with his father and his mother; a couple who was counted at their primary address and at their seasonal home; or a college student who was counted both at home and in the dorm. The goal of the TCFU questionnaire was to have the respondent confirm that the person (or persons) who appeared to have been duplicated in the census lived or stayed at more than one address, and also report enough information about their living situation to determine where they should be counted using the census rules of residency. The goal of the cognitive interview study was to evaluate comprehension, accuracy, and sensitivity issues that might surround this questionnaire.

Census 2000 was the first U.S. census to incorporate the computer capture of names and dates of birth by optical character recognition as an integral part of the processing (Fay, 2004). This allowed for computer matching of person records to identify suspected duplicates in the census. As a result of the high rate of identified suspected duplicates in the 2000 Census, research since then has focused on identifying potential duplicates in the census and following up with them to resolve the duplication. The general approach that the Census Bureau has taken to resolve computer-identified duplicates is to interview the household again and ask standard follow-up questions that are used to resolve many other difficult coverage situations via the Coverage Followup (CFU) interview. This interview is not specific to the type of coverage situation, but asks if any person in the household stayed at another place – listing the types of places that we know people are often duplicated (e.g., college, at a job, in the military, with parents in a custody situation). Previous research showed that the CFU interview was ineffective at resolving duplication in the census (see Heimel, 2010 for a summary of this research). Often, when interviewed, the suspected duplicated person did not reveal the alternate address that the

computer identified, nor did the respondent identify the fact that there was any another place that he had stayed.

The Census Bureau has been very cautious of dealing with suspected duplicates because of privacy and confidentiality concerns. Under Title 13 of the U. S. Code, the Census Bureau cannot release identifying information about respondents to anyone who is not a sworn census employee (or agent). For this reason, the Census Bureau cannot reveal any information about a suspected duplicate person to someone who may not be that duplicated person, or may be a person who is unauthorized to have information about the duplicated person. For example, we could interview a respondent, Jane Doe, whose demographic information exactly matches a different Jane Doe. We do not want to accidentally tell the first Jane Doe about the existence of the second Jane Doe. A second example to illustrate this type of risk is where Jane Doe has left her abusive husband, John Doe. We would not want to inadvertently tell John where Jane is living now by consequence of the interview. For these reasons, we cannot call both addresses and say that we have Jane Doe reported as living both at 101 Main Street and 200 Sister Lane.

In 2008, researchers cognitively interviewed a small sample of respondents for whom a household member had been identified as a suspected duplicate in the 2008 Census Dress Rehearsal data (i.e., the same person seems to have been counted in two households; Childs, Fernández, Clifton and Meyers, 2009). In that study, researchers told the respondent directly that the person "may have been counted at another residence" without revealing exactly where that residence was. Cognitive testing revealed that, using this approach, some respondents may have felt that their confidentiality had been breached. For example, one respondent was a father who had sole custody of his children and upon hearing that his children may have been counted twice in the census, he became upset that their mother had counted them. If this respondent contacted the children's mother, she may have felt like the Census Bureau breached her confidentiality by telling the respondent how she responded to the census. Although the interviewer had not told him that the children had been counted somewhere else definitively or told him where they had been counted or who had counted them, the respondent inferred that if they had been counted twice, it must have been their mother who counted them. Because of this deduction, she may feel that the Census Bureau revealed her personal information. Based on this type of reaction (which was seen to a lesser degree with a couple of other respondents), our strategy for interviewing about duplicates was changed.

## 2. Methodology

This paper draws findings from a large cognitive study conducted by RTI, International and RSS under contract with the U.S. Census Bureau. The goal of the interviewing was to conduct cognitive testing of the TCFU and qualitative interviews with suspected duplicates across a variety of living situations. Two hundred and twenty six cognitive interviews were conducted across five interviewing sites, which included Illinois; the Washington, DC, metropolitan area; North Carolina; California; and the New York metropolitan area. The interviews took an average 60 minutes and were conducted face to face with an adult who was listed on the census form associated with that particular household. Each of these interviews included an informed consent procedure. Whenever possible, the recruiters attempted to make an appointment with the person who completed the census form for the household and with the adult duplicated person himself

or herself. If that person was not available, the appointment was made with a proxy who was also listed in the census form for the household (Peytcheva at al 2011).

#### 3. Results

In the TCFU, respondents are asked detailed information about where they have lived or stayed in the last year. Due to complex relationships and associated mobility, some of these questions are perceived as sensitive or intrusive when asked by an agent of the Federal Government. The following types of questions were identified as sensitive for privacy reasons: 1) providing information on other people; 2) providing information on children; and 3) providing addresses other than the unit being surveyed.

## 3.1 Identifying Privacy Concerns Within the Interview

Privacy concerns were identified by researchers in a number of different ways. Some respondents spontaneously mentioned privacy concerns. Those were most often expressed when asking for other people's addresses and whether the respondent stayed with a girlfriend or a boyfriend. For example, one respondent said he did not know the address, but later during the interview revealed that he did not want to provide this information as he considered it private. In response to staying with a boyfriend or a girlfriend, one respondent said: "That's too personal;" another said the question was "nosy;" and yet another commented, "That's out of order. Too invasive."

Asking parents about their children also elicited concerns, especially when the child was the main topic of the survey. For example, one respondent said: "Kind of strange to ask about a child, I'm protective of my child and asking where they sleep is a little strange ..." Situations where a child stays part of the time with divorced parents or other relatives also brought up a heightened sense of concern for the parents. For example, one respondent said: "The census is being nosy; you are getting people suspicious by asking questions about a child, especially in situations like ours where we have a custody issue, I could think you are someone here to fish for information..."

Though rates of refusal are typically very low in cognitive interviews due to the increased incentive structure and rapport, we did see some refused questions in this study for reasons of privacy. This was another, very strong indicator of privacy concerns. The majority of refusals were to the items asking about the names of the other people living at the other addresses and for the actual other address. Interestingly, this may be the point in the questionnaire where it crosses the line between asking about the respondent's household and begins to ask about a perceived other person's household, which may cause a negative reaction. For example, one participant refused to answer any questions related to addresses and names of other people or places. When asked if he/she thought of other places where the person might have stayed, the respondent simply said: "Sure. I'm still not going to tell you." In another case, the respondent provided a partial address, saying, "Do we have to tell you? I don't feel comfortable disclosing too much without their consent."

A more passive way for a respondent to refuse to answer is to respond that they don't know the answer. We saw this behavior more commonly for proxy respondents than non-proxy, but it is difficult, if not impossible, to tell whether these were lack of knowledge (also possible for proxy respondents), or passive refusals.

In addition to the spontaneous mentions of privacy concerns, there were explicit debriefing probes about privacy. Twenty-seven percent (26 out of 96) of proxy respondents and twenty-two percent (29 out of 130) of duplicate respondents expressed explicit privacy concerns. Though nonproxies were more likely to refuse to answer specific questions, proxies were more likely to mention privacy concerns. In both cases, the common theme is that asking respondents about people other than themselves sometimes raised privacy concerns. In response to these, respondents expressed privacy concerns ranging from a specific aspect of the questionnaire (e.g., asking for names of relatives), to finding the whole questionnaire invasive. For example, one respondent stated that she was hesitant to disclose her relative's information "because of privacy." She noted: "I wouldn't disclose the exact address even if I knew it." Another participant commented: "In my opinion it's none of the governments business what NAME does on a day-to-day basis. It's irrelevant, it's a little... it's beyond big-brother. It's none-of-your-business stuff. Ok, and I'm not saying this to you, I'm saying this to our government. Go away, that's what I'm saying. Enough."

Another way of identifying privacy concerns is through uncovering inconsistencies, or lies within the interview. Some of the targeted questions on staying at a place like shelter or a jail were perceived as sensitive by respondents and led to untruthful responses. For example, one participant, who was recruited because it appeared in the data that he was counted at both a housing unit and a shelter, denied staying at a shelter during the interview, but admitted to it during the cognitive portion of the interview. He simply stated he did not want to talk about it.

#### 3.2 Identifying Privacy Concerns Using Paradata from Interview

In another pretest of this questionnaire (Childs et al, 2009), a purposive sample was recruited in such a way that interviewers had a priori knowledge of the living patterns of the households that were interviewed. This allowed the researchers to identify privacy concerns that may have gone unnoticed in a typical cognitive interview, where background information would not be known about the respondents.

The most drastic of these cases was one case that was recruited because of personal knowledge of the researcher that there was a joint custody situation. The respondent reported both expected addresses (the former and the current), but the second address was reported only as a place that the respondent and her son visit occasionally, not as her (and her son's) current address, as was known through personal knowledge. During the debriefing, when asked about the sensitivity of these questions, she reported that if someone thought some information was not any of the Census Bureau's business, that person simply would not tell the Census Bureau about it. Interestingly, this is, in fact, how it seems that she reported. Had this been a typical interview, the researcher would not have detected this inconsistency and perceived privacy violation. Aside from this personal knowledge that was external to the conversation, there was no indication of a violation of privacy or inconsistency within the interview itself.

Such inability of cognitive interviewing to identify and properly code this type of case was made even more apparent in additional analysis of the TCFU study, in which seven matched-pair interviews conducted by Peytcheva and colleges (2011) were analyzed in order to resolve such duplication issues (these issues are further discussed in Heimel and King, 2012). Of these seven sets of interviews (one conducted at each of the two addresses associated with the duplicated person(s)) only one resulted in agreement between the two sides. Instead there were considerable differences that emerged between the accounts of the paired interviews that made it impossible to know where the actual person(s) in question was living. Each of these interviews provided a complete, self-consistent narrative about how frequently the duplicated person lived with them. Many of these interviews "claimed" the relative by arguing that s/he spent more time at this address, which indicates that one or both of the accounts was inaccurate. The only case in which the situation was agreed upon by the two independent interviews was a situation in which the duplicated person had moved and both the person and the former roommate offered the same account. In the other cases, the "true" story was not obvious, indicating a limitation to cognitive interviewing. In the Childs et al (2009) pretest, there were instances in which a priori knowledge could resolve the inconsistences, but in a typical cognitive interviewing situation, interviewers would not be privy to such "insider knowledge." This is an important and interesting finding that shows the limitation of cognitive interviewing in general to uncover privacy concerns.

For example, in one of the interviews a child's mother indicated that the daughter "moved back" with her in the spring after some sort of "incident," while an interview with the father of the child reported that his teenage daughter lived with him and spent holidays and vacations with her mother as part of the court-agreed custody arrangement. In another situation a grandmother listed her daughter and her daughter's two children as living with her for all of the year, only moving to a new home in the next year. She also reported that the children never visited their father. This contrasts with the mother's account that all three of them lived at another, new, address, visiting the grandmother and father (at respective addresses) on occasion. In each of these situations, it is difficult to pinpoint the reason behind the divergent accounts. Although they could be mistakes or discrepancies in knowledge of the person's whereabouts, it is more likely that these pervasive differences are in part motivated by privacy concerns. If the respondent does not want the Census Bureau, or the government more generally, to know about a custodial arrangement or someone's multiple residences, they will simply not report the details that they perceive to be "none of the government's business." We recognize the limitations of cognitive interviews to identify these concerns without having external data with which to compare the cognitive interview responses. Although this methodology yields more elaborate data and explanations to account for different responses, the cognitive interviews are not always able to identify intentional fabrication, omissions or misunderstanding on the part of the respondent.

Though we had intended to try to discern problems with sensitive questions versus sensitive answers and threat of intrusion versus threat of sanction (Lee, 1993; Willis, 2005), when the privacy concern was identified by the respondent refusing to provide the information or misrepresenting the information, it was not possible to uncover the reason within the interview itself. In these instances, the respondents were refusing to truthfully respond to the questions and that made probing the situation difficult, if not impossible, to probe on.

### 3.3 Confidentiality Concerns

In contrast to the previous pretest of the TCFU operation which generated significant confidentiality concerns (Childs, et al., 2009), the approach discussed in this paper was less likely to generate confidentiality concerns because interviewers did not begin by saying that someone may have been counted twice (Peytcheva et. al, 2011).

Only 7 out of the 226 participants in the current study expressed concerns related to how their data would be used or protected after it was collected. For example, one respondent insisted on clarifying that the information she gave would not be going anywhere further, making sure her information would not be saved. She said she came "from an older era where there is a lot of suspicion, so that's why I'm curious." Another respondent requested the audiotape from the interview to be mailed back to him after it was used for analysis. Yet another participant answered a question in a particular way because she didn't "know where this [information] could possibly go" and she added, "so I don't want to implicate people who may be innocent."

None of these concerns were of the same magnitude of previous studies; however, the implication is similar to the privacy concerns. If a respondent doubts that the Census Bureau will keep their data confidential, they may simply not provide this information.

Though we have classified concerns as primarily privacy or primarily confidentiality concerns, the distinction is not always clear. If a respondent refuses to provide information, as was mentioned in the section on privacy, it may remain unclear in the cognitive interview if the source of their concern is one of privacy (the asking entity has no right to know) or confidentiality (the respondent does not trust the asking entity to keep the information secure). This applies also to cases of inconsistencies or "lies" – we have attributed those to privacy concerns, but they could also be confidentiality concerns if the underlying issue is that the respondents do not trust the Census Bureau to keep the information about them secure and to not use it against them. An example would be if a respondent had a court order about a custody situation that they were not upholding, but did not trust the Census Bureau enough to provide truthful information.

#### 4. Conclusions and Future Research

We were able to identify privacy and confidentiality concerns in cognitive testing through several mechanisms. In some cases, respondents provided direct, spontaneous reports of privacy or confidentiality concerns. Debriefing questions specifically about privacy and confidentiality also let to similar findings as the direct reports. We also saw item nonresponse, in the form of refusals and don't know responses as indicators of privacy violations. Above and beyond these measurable effects, we obtained paradata from the cognitive interviews that suggested there are limitations to what can be determined from cognitive testing with regards to privacy concerns. A way that we were able to overcome this, at least partially, was to interview cases where external information can be gathered to validate (or invalidate) information gleaned in the cognitive interview. We demonstrated this in two ways in this paper: 1) through external personal knowledge in a purposive sample, and 2) by doing matched-pair interviews with two people reporting on the same substantive issue. This could also be accomplished when records are

available to compare the cognitive interviewing information, assuming those records are known to be accurate.

Though we were able to draw some meaningful conclusions in this case study, we want to conclude with a cautionary statement. Because we found unanticipated inconsistencies within the cognitive interviews, we cannot be certain if we uncovered all of these instances of privacy concerns from the interviews. If respondents in cognitive interviews are choosing to lie or misrepresent the truth when faced with a question that they believe violates their right to privacy, then that places a constraint on cognitive testing. While external validation might be a solution, it does call into question aspects of the interview that cannot be externally validated.

If the response, even in a cognitive interview setting, is to lie when the boundary is crossed, then alternate methods must be pursued to understand what questions can and cannot be asked in an interview to gather data of high quality. Ethnographic methods may be better suited to understanding "truth" and understanding the limits of privacy in situations where there could be privacy concerns. In typical ethnographic methods, the researcher is (or becomes) a trusted member of the community, thus enabling him or her to learn more about the community than an outsider would. This type of trust may be necessary to understand where respondents' privacy boundaries are.

The next step in this research might be to conduct a comparative study with survey responses, cognitive interviews, and ethnography involving complex living situations where multiple parties are interviewed independently. The goal would be to understand if more truthful responses could be gathered through ethnography than through cognitive testing with regard to identifying privacy concerns and eliciting truthful responses.

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