

The Use of Cognitive Interviewing to Explore the Effectiveness of Advance Supplemental Materials among Five Language Groups

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Abstract

The research documented in this paper serves two purposes. First, this qualitative study uses data from cognitive interviews conducted with five language groups to explore and document the underlying reasons why a multilingual brochure might or might not enhance survey participation among respondents who have little or limited knowledge of English. Second, this research highlights issues in using cognitive interviewing methodology in a cross-cultural context. In particular, this paper discusses the challenges in using cognitive interview summary data that has been translated, interpreted, and summarized by language experts.

1. Introduction

It is a common practice for survey organizations to mail pre-notification materials to sample addresses in an effort to reduce household nonresponse (Groves 1989). The effectiveness of prior notice at improving response rates has been documented in many previous studies (Dillman 1991). In a meta-analysis study, Fox, Crask and Kim (1988) found that pre-notice letters produced one of the largest increases in mail survey response rate apart from university sponsorship and stamped return postage. Another meta-analysis study found that preliminary notification was the most effective action that could be taken in survey design and suggested that researchers should continue to use preliminary notification to enhance response (Yammarino, Skinner and Childers 1991.)

Fox et al. (1988) asserted that pre-notice letters alert potential respondents that the survey is coming, thus ‘reducing the likelihood of an interested recipient inadvertently discarding the survey.’ Dillman (1978) posited that the letters could establish the legitimacy of the survey in a form of trust under the theory of social exchange. According to this theoretical framework, an advance letter provided by legitimate sponsors is likely to be valued by the recipients who may perceive the benefits to outweigh the costs of responding, thereby, yielding more cooperation from them.

The U.S. Census Bureau, the government agency responsible for the United States Census, and the largest U.S. agency to gather other national demographic and economic data, routinely sends out advance letters and supplemental materials to residents of sampled addresses (e.g., for the American Community Survey, the Survey of Income and Program Participation.) The advance letters and supplemental materials provide important information about the survey and notify the households that they will be receiving a mail survey, a phone call, or a personal visit by an interviewer. Such practice establishes the legitimacy of the survey and provides confidentiality assurance by informing respondents that all information collected for the survey is confidential and protected by law (Title 13, U.S. Code). In recent years, the U.S. Census Bureau has

¹ *Disclaimer:* This paper is released to inform interested parties of research and to encourage discussion of work in progress. The views expressed are the authors’ and not necessarily those of the U.S. Census Bureau.

begun to include advance supplemental materials in other languages due to the non-trivial number of the U.S. population who does not speak English very well (U.S. Census 2007a, 2007b, 2007c), which presents access problems for the survey interviewers. Little is known about whether translated advance supplemental materials will have the same positive effect as a prenotification letter. In this study, we explore whether non-English-speaking respondents will find a multilingual brochure helpful in improving their survey response intention.

2. Background

2.1. Linguistically Isolated Households

The number of U.S. population that speaks a language other than English has grown in the recent years (Shin 2008). In 2007, about 27.6% of Spanish-speaking households were linguistically isolated² (U.S. Census 2007c.) Among other language groups, linguistically-isolated households make up about 28.1% of those households with members who spoke Asian or Pacific Island languages, 16.6% of those households who spoke other Indo-European languages, and 16.7% of those who spoke other languages.

2.2. American Community Survey (ACS)

The ACS is a nationally representative household survey designed to replace the decennial census long form in future U.S. censuses. Since the U.S. census is done once every 10 years, information collected through the decennial census long form becomes out of date rather quickly. The ACS samples approximately three million addresses annually and uses three sequential modes of data collection. Data are collected initially by mail. Census Bureau staff follow up with mail nonresponse households using computer-assisted instruments first by phone and then in-person as last resort. The ACS interviewers routinely encounter non-English-speaking households, necessitating the availability of assistance in several different languages. Spanish, Chinese, Korean, and Russian are some of the languages most requested by non-English speakers for assistance. Together, these four languages made up 84 percent of the 34,233 households in the 2006 ACS Computer Assisted Telephone Interview (CATI) caseloads that required language assistance (Griffin 2008.)

2.3. Multilingual Brochures for the American Community Survey

In an effort to provide important information about the ACS among linguistically isolated households, the U.S. Census Bureau has designed an ACS multilingual brochure to be mailed together with the ACS's English advance letter. The advance letter notifies the sampled household that they will be receiving the ACS questionnaire in the mail and provides information about the ACS, its purpose, and survey sponsorship. The multilingual brochure is designed to convey the similar information in five languages (English, Spanish, Chinese, Korean and Russian) and to provide information about the mandatory nature of the survey, confidentiality assurance, and a telephone number for language assistance. The key information in this brochure is the instruction for respondents to call the toll-free phone number to complete the ACS by phone in their

² "Linguistically isolated" refers to those households in which no member 14 years of age and over (1) speaks only English; or (2) speaks a non-English language and could speak English "very well" (U.S. Census 2007c.) It is estimated that in 2007 almost 5% of all U.S. households (about 5.7 million) were linguistically isolated (U.S. Census Bureau, 2007b.)

own languages; the successful completion of a telephone interview will prevent a costly in-person followup visit requiring either an interpreter or a bilingual interviewer to conduct the interview. The brochure is printed on both sides of a sheet of regular letter-size paper and is folded into a tri-fold brochure to create a total of six panels. The top panel is the front cover, which contains the title of the brochure in five languages listed above and each of the remaining five panels is presented in one of these languages. As mentioned, the latter four languages made up 84 percent of all 2006 ACS CATI caseloads that required language assistance.

2.4. Language Research Pretesting Project on the ACS Multilingual Brochures

With the need to provide translated supplemental materials for the ACS and other Census' surveys, cognitive interviewing techniques have been adapted and used to pretest cross-cultural questionnaires and supplemental materials at the Census Bureau (e.g., Pan, Craig, and Scollon 2005; Pan, Landreth, Schoua-Glusberg, Hinsdale and Park 2007).

From 2007 to 2008, the Census Bureau, in collaboration with Research Triangle Institute (RTI) International, established a multilingual research team and used a committee approach to review and pretest the translation quality of the ACS brochures. (For more detail about the cognitive testing project, see Pan, Hinsdale, Schoua-Glusberg and Park 2008.) The cognitive testing project follows the pretesting standard and the translation guidelines (Pan and de la Puente, 2005) developed by the U.S. Census Bureau. First, a multilingual team of four language groups was formed. Each language team consists of three or four language experts who speak both English and one of the target languages. Each team provided expert review of the translated brochures and revised the brochure provided by a commercial translation company. The teams then translated the English protocol for the cognitive interviews into their target languages. All language experts received a two-day cognitive interview training and conducted the cognitive interviews in the target languages.

Three research sites were selected for their high concentration of target language groups and the geographic proximity of the sites to the research teams, to contain the overall costs of the project. A convenient purposive sample of monolingual speakers was recruited through newspaper and electronic advertisements, non-English language schools, and word-of-mouth. The recruitment targeted participants whose demographics mirrored those of the 2006 ACS non-English-speaking respondents in the CATI interviews. A total of 59 native Chinese, Korean, Russian, and Spanish, or English speakers participated in the cognitive interviews between November 2007 and February 2008.

The respondents from each language group were given an advance mailing packet containing a prenotification letter in English and the multilingual brochure. This advance packet mirrors the one sent out in the actual ACS mail mode. Monolingual respondents opened and reviewed the mailing package while the interviewers observed their reaction to seeing their language panel in the multilingual brochure.

Two rounds of cognitive interviews were conducted. After the initial round, the language teams met to review the results and provided recommended alternative wordings and other necessary changes in the brochure for the second round of pretesting. The language experts taped and summarized the cognitive interviews in a standardized format in English only.

2.5. Research Goal

This research serves two purposes. First, this qualitative study will explore and document the underlying reasons why the translated materials might succeed or fail to enhance survey participation among non-English speakers. The findings in this qualitative study will complement an experiment conducted by other researchers on the ACS Methods Panel, which is based on the representative sampling method and will provide reliable estimates of the actual impact of the multilingual brochure on the survey response rates of non-English-speaking participants in the CATI mode of the ACS. Our findings will provide supplemental explanations for the results of that experiment. Second, this research highlights issues in using data from cognitive interviewing methodology in a cross-cultural context. In particular, this paper discusses the challenges in using cognitive interview summary data that has been translated, interpreted and summarized by language experts.

3. Methods

3.1. Data

This study utilizes qualitative data collected as part of the larger language research pretesting program as summarized in section 2.4 above. Table 1 summarizes the basic demographics of the 59 respondents. The cognitive interviewing methodology of this part of the research has been reported in greater detail in Pan et al. (2008); a summary appears below.

Table 1. Demographic Summary of Respondents by Language Groups

Demographic Characteristics	Chinese Speakers (N=12)	Korean Speakers (N=13)	Russian Speakers (N=12)	Spanish Speakers (N=12)	Native English Speakers (N=10)	Total (N=59)
Age						
18-34	1	2	0	7	3	13
35-54	4	5	3	3	4	19
55 or older	7	6	9	2	3	27
Gender						
Male	4	5	3	4	5	21
Female	8	8	9	8	5	38
Education Level						
Less than high school	4	2	3	6	3	18
High school	6	7	1	6	4	24
College	2	4	8	0	3	17
Year of Entry						
Before 1989	2	1	1	4	Not Applicable	8
1990-1999	3	6	7	2		18
2000-2005	4	5	3	5		17
2006 or later	3	1	1	1		6
State of Residence						
North Carolina	4	0	0	2	0	6
Washington Metro Area	8	4	0	0	1	13
Chicago Metro Area	0	9	12	10	9	40

3.2. Cognitive Interviews Protocol

After the initial introduction and informed consent procedures, all participants in this study were asked to open and read the advance packet as if they were selected to participate in the ACS. Interviewers were instructed to observe how respondents handled the advance letter and the multilingual brochure, and whether they read and understood the materials.

Next, interviewers assessed respondents' opinions on, concerns about and impressions of the materials. Respondents were then asked to read the brochure again and were probed about the meaning of various messages to assess their understanding of the information provided in the brochure and whether they found the information in the brochure useful in enhancing their survey participation intention.

Finally, interviewers administered several additional hypothetical questions that asked respondents what they would do if they received the advance materials at home—in particular, whether: 1) they would open the advance packet and/or read the multilingual brochure; 2) they would call and participate in the ACS; and 3) they thought the brochure would help increase the likelihood of their survey participation, as well as that among other non-English speakers. The interviewers probed respondents to find out how and why the brochure might succeed or fail in enhancing response rates among non-English speakers.

3.3. Analyses

We focus on analyzing the interview summaries among non-English speakers, although data from native English speakers are used for comparison where necessary. We explore the behavioral and response patterns among non-English speakers and compare them to those of native English speakers. First, to explore whether the translated material was presented in an effective format and whether respondents found the brochure useful, we summarize participants' observed behaviors and opinions about the multilingual brochure. Second, we summarize participants' responses on the hypothetical questions to explore the reasons why the brochure might succeed or fail to enhance response rates among non-English speakers. We report on other factors that seem to affect the survey participation intention of non-English speakers. Finally, we highlight the issues revealed when using cognitive interviews in a cross-cultural context, and problems encountered by the researchers when only secondary data are available.

4. Results

4.1. Design format for multilingual materials

In order for the brochure to deliver the information and be effective, it must be 'noticed' and read by the respondents. During the initial observation, both native-English-speaking and non-English-speaking respondents provided clues and comments that a brochure is not the best format in which to present the translated materials.

First, our findings show that some respondents did not pay attention to supplemental mail materials. There were respondents from every language group, including native English speakers, who overlooked the brochure when they were asked to review the materials. For example, one Russian respondent only took the letter out and left the brochure in the envelope. A Chinese respondent opened the envelope, took out the materials, tried to read the letter without even looking at the brochure in her hand, then said, "These are all in

English...I don't understand it at all. I'll throw it away." Another Russian speaker said, "I told you I don't understand English!" There were respondents from every language group reporting that they generally only look at a letter they received in the mail (the main document) and that they would have ignored supplemental materials such as a brochure or leaflets. They assumed brochures are advertisement or promotional materials, nothing 'important.' One native English speaker explicitly referred to the brochure as 'junk.' Furthermore, during the debriefing session and the administration of the hypothetical questions, the Asian and Russian respondents told the interviewers that it is not customary for them to receive mail in the U.S. that contains material in their language, so if they received the ACS advance letter and the letter is in English, they will not know to look for supplemental materials that they can read. Others told us they will not even open the envelope if they were to receive the letter because they do not read English and there was no indication or any visual cues on the envelope that there was translated material inside that they could read; therefore, they would assume that there was no reason for them to open the envelope.

Secondly, even among respondents who noticed and opened the brochure during the initial observation, a few overlooked their target languages on the cover and/or the language panel targeted for them. Respondents were aware that they would be reviewing materials translated in their native language during our recruitment. Their laboratory behaviors suggest that some respondents were actively looking for materials that they could read, and otherwise would have overlooked the language panel, as well: "What you have here is all in English, is there anything in Chinese? Oh here it is."

One reason why respondents overlooked their native languages was that they thought the advance materials were only in English. They either looked at the front cover or flipped the brochure back and forth without opening the brochure, and if their native language was not on the back panel, they tended to miss the language text completely. This somewhat reassured us that the respondents were actually behaving quite 'normally' in the laboratory. It is our contention that even more respondents would have overlooked their native language if they were not being observed.

Another reason for respondents to overlook the target language is the placement of the language text. As mentioned in Section 2.4, the various languages' texts had different placement during the two rounds of cognitive interviews³. Table 2 shows that regardless of what languages were placed in the inside panels and the back left panel, respondents had a tendency to overlook their target language. The exception is the left inside panel, which is the first panel most participants paid attention to when opening and skimming the brochure. During the debriefing session, respondents' comments were consistent with interviewers' observations: the inside left panel is the most noticeable and most preferred section. During the first round of interviews, the Spanish speakers pointed out that they particularly liked having the Spanish translation on the left panel; all of them noticed the text. Some Asian- and Russian-language speakers suggested that their languages should be placed on the first and inside left panel, so they would be easier to find. Others

³ It was not part of the original research design to test the navigational issues associated with the placement of the various language texts. However, the recommendation to switch the text order due to results from the first round of pretesting provided an excellent opportunity for us to explore the navigational issues of the brochure.

considered the placement of their native language after other languages as an implication that their languages were less important.

Lastly, interviewers observed that an inherent issue with using a brochure was the lack of readability of the text. The font size was too small for many older respondents who could not even determine that the text was in their own language.

Table 2. Respondents' Observed Behavior by the Location of the Language Text

Location of Language Text					
	<i>Inside left panel</i>	<i>Inside middle panel</i>	<i>Inside right panel</i>	<i>Back left panel</i>	<i>Back middle panel</i>
Round 1	Spanish	Chinese	Korean	English	Russian
Round 2	English	Spanish	Chinese	Russian	Korean
Respondents' Observed Behavior	All respondents noticed the language text in both rounds	Overlooked in both rounds by respondents	Overlooked in both rounds by respondents	Overlooked in both rounds	All respondents noticed the language text in both rounds

4.2. The necessity of a multilingual brochure to remove language barriers

When asked whether the inclusion of the brochure was useful, many non-English speakers stated the obvious point that without the multilingual brochure, the advance letter would be meaningless unless they found someone to translate the letter for them. Some respondents appreciated how important the translations in the brochure made them feel. They thought that the language text and toll-free language assistance provided by the survey sponsor showed how much the sponsor/government cared about their opinions and valued their participation. On the contrary, our native English speakers did not find the brochure particularly useful; most of them only skimmed it during the interviews, and concluded either that it covered the same material as the advance letter or that the brochure is for non-English speakers. In fact, a couple of them overlooked the English text and thought the brochure had no English. When asked if they would read the brochure if they were to receive it in the mail, only a small portion of the English speakers said they would read the brochure while the majority of non-English speakers said they would do so.

4.3. Hypothetical survey participation intention among non-English speakers

To explore whether there may be group differences among our language groups, we compare their overall perceived likelihood that they would call and participate in the ACS if they received and read the brochure. The majority of the non-English-speaking respondents said they would call and ask questions and/or participate in the ACS if they received the questionnaire (See Q1 and Q2 in Table 3). However, fewer Chinese and Korean respondents reported that they would do so compared to other language speakers. Given that the native English speakers could read the advance letter, as expected only one in ten English speakers said they would call if they had questions; most seemed to know

what was expected of them, and said they would simply fill out the survey when it arrived.

Table 3. Participants' Responses to Hypothetical Questions⁴.

Hypothetical Questions	Chinese Speakers (N=12)	Korean Speakers (N=13)	Russian Speakers (N=12)	Spanish Speakers (N=12)	Native English Speakers (N=10)	Total
Q1. Will respondents call to complete or ask questions about the ACS?	8/11 (72%)	11/13 (85%)	12/12 (100%)	12/12 (100%)	1/10 (10%)	44/58 (76%)
Q2. Will respondents participate in the ACS?	10/12 (83%)	9/13 (69%)	12/12 (100%)	12/12 (100%)	9/10 (90%)	52/59 (88%)
Q3. Do respondent think the brochure will help improve participation for non-English speakers like them?	5/12 (42%)	5/13 (38%)	9/12 (75%)	10/12 (83%)	6/8 (75%)	35/57 (61%)

4.3.1. Effectiveness of brochure's information for respondents

Respondents were asked whether the messages contained in the brochure made a difference in their hypothetical intention to participate in the ACS. Overall, among respondents who said they would participate in the ACS, at least one respondent from every language group had provided one of the following reasons: 1) participation is required by law; 2) benefits to respondent's community or own group; 3) the availability of language assistance; and 4) interest in the survey. Civic duty was a reason given by respondents from all but the Chinese language group. The information provided in the brochure did address these reasons and seemed appropriate to provide to potential and interested respondents.

4.3.2. Effectiveness of brochure for other non-English speakers

When respondents were asked whether they believe the brochure will help improve participation for others like them who do not speak English (See Q3 in Table 3), the Asian respondents were less positive about the effectiveness of the brochure for others like them compared to the other language groups. Less than half of the Asian respondents believed that the brochure would have any effect on participation rate. For instance, although Korean respondents believed that the brochure would inform potential respondents about the survey, many did not believe it would improve participation. "Koreans are apathetic... They don't care about these things." Many Asian respondents did not believe that the survey was mandatory. They perceived calling in to complete the survey as time-consuming and inconvenient; and there is no practical benefit for them to participate in the survey; unlike the cognitive interview which provides \$40 cash incentives. A small portion of the Asian respondents mentioned that because they are legal immigrants, they would participate in the survey. The Russian and Spanish speakers in this study appeared to be the most interested in participating in the ACS and thought the brochure would help improve participation for others like them. Among the Russian speakers, the only reason they thought the brochure might be ineffective was its design-

⁴ Not all respondents were asked or provided valid responses to these questions.

related issues, such as the visibility and readability of the Russian text as described earlier. The Spanish speakers seemed to love the colorful brochure and the information provided but many noted that they would be concerned about undocumented residents, who they thought would be hesitant to participate in a government survey for fear of the law. Based on these findings, it appears that sampled ACS Asian households and households with undocumented residents may be the least likely to use the language assistance hotline.

4.4. Other factors related to survey participation intention of non-English speakers

One underlying assumption of including a multilingual brochure is that removing the language barrier will provide useful information to the respondents and help improve the response rate from non-English speakers. Our findings suggest that the provision of translated material does not guarantee that non-English speakers will understand the materials or that the response rate will improve.

4.4.1. Literacy

The interviewers observed that literacy is a universal issue among respondents with lower education (less than high school) in all language groups. Some respondents have difficulties reading words or characters in their own languages. Given that some non-English-speaking participants appear illiterate in their own languages, language barriers remains for them and will affect their likelihood to participate in a survey.

4.4.2. Survey culture and survey literacy

Our analyses revealed some cultural differences between the Asian and other language groups and suggested that non-English-speaking Asians may be less inclined to participate in the ACS. Based on their responses to the interview, both the Chinese and Korean respondents appeared less survey literate than the Russian-, Spanish- and English-speaking counterparts. The Russian and Spanish speakers knew about census conducted in their own countries regardless of how long they had been in the United States. Many of the Asian respondents had difficulty understanding the purpose of a survey, their roles as interviewees and what was expected of them if they received the advance materials. For example, while commenting on whether the translation was easy or difficult to understand, one Asian respondent said, “I sure understand this brochure, why not? But the specific content of the survey is not clear.” Another Asian participant’s response illustrated his lack of familiarity with advance materials in a survey operation: “It seems that it didn’t explain to me why I received this information, or why this letter is sent to me.” The expectation of non-English speakers to call and complete a telephone survey seems far fetched for some of these survey-illiterate Asian respondents. They demonstrated skepticism about the legitimacy of a telephone survey and expressed concerns about being victims of fraud. Some respondents pointed out that they have been, or knew of friends and relatives who were victims of fraud. For them, receiving a brochure which gives limited information on a survey that requires them to provide personal information over the phone doesn’t seem ‘safe’: “I don’t trust telephone survey. I don’t know whom I am speaking with and whether this is real.” Hence, several respondents mentioned that they would never provide personal information over the phone and would not call the phone number (See Q1 in Table 3).

Unlike the Asian respondents, the Spanish speakers welcomed the idea of telephone interviews, as they preferred the conversation interaction over filling out a survey form. The Russian speakers gave us the impression that they would call the number to complete the survey.

4.4.3. Residence status

Respondents from every language group commented that the brochure will have no impact on undocumented residents. This concern expressed for others in their group was most prominent among the Spanish speakers. The immense fear of the government, the law and the potential arrests by the immigration services resonates among some cognitive interview participants, to the extent that several of the Chinese, Korean and Spanish speakers were concerned about the respondent payment they were receiving and wanted the interviewers to assure them that the Immigration and Naturalization Service (INS)⁵ was not one of the sponsors.

Additionally, many of the Asian respondents who were visitors in this country and not permanent residents decided that the mandatory law does not apply to them. They see the survey as irrelevant and did not see themselves as the target sample. This prompted the clarification and specification on the revised brochure that the survey is for everyone who is residing in the United States.

4.4.4. Living arrangements

Another factor that is beyond the control of the survey researcher is the living arrangements of some of the target population. One Chinese participant pointed out that because she is living with unrelated people, no individual resident would open the envelope, since the envelope would be addressed to the residents and not a specific person. This is consistent with earlier research on complex ethnic households among new Asian and Spanish immigrants (Schwede, Blumberg and Chan 2005). Identifying a householder to complete a self-administered survey in these types of households will be challenging.

4.5. Application of cognitive interview methods in a cross-cultural context

In this section, we report issues we encountered when analyzing the secondary data obtained for this study and highlight some of the difficulties interviewers encountered when using cognitive interviewing techniques cross-culturally to pretest translated materials. In this study, we refer to the secondary data as the cognitive interview summary data that has been translated, interpreted, and summarized by language experts.

Unlike the typical cognitive interviews that are conducted in English, language experts, not survey methodologists, conducted the cognitive interviews. The data analyses for this study are thus based on secondary data where the interviews were conducted in target languages and the interview summaries were provided in English. Researchers have to rely on these cultural members to interpret the interview results and thus have no direct access to the interview data. The English proficiency of the cognitive interviewers is uneven among different language groups. This poses a threat to the quality of the interview summaries. Hence, one major challenge of a large cross cultural cognitive testing program is that it is difficult for researchers to tell whether the responses generated from the interview were comparable to those conducted in English.

Given that many of the responses from participants had been interpreted and summarized by the language experts who understood the cultural aspects of communication, the

⁵ Although the United States Immigration and Naturalization Service (INS) was the former name of the current U.S. Citizenship and Immigration Services (USCIS), many respondents still refer to USCIS as INS.

cognitive interviews appear to work more seamlessly in a cross cultural setting for many of the language groups. However, the cognitive interview summaries do not always reflect all the linguistic and cultural nuances in the interview process because they were cognitive interviewers' interpretations about what was going on in an interview. In addition, the interview summaries focused on how the respondents understood a specific term or a statement rather than the interview process itself.

The only exception was that cognitive interview summaries of some Chinese respondents suggested that the cognitive interviewing probes and techniques do not always work as intended. Although the Chinese respondents appear to engage in responding to interview questions, their responses often seem 'off-track' and irrelevant, with minimal information revealed; and they tend to have difficulty providing individualized or personal opinions. Some of their responses were sufficient but it did not directly answer or match the questions' intent. For instance, when the interviewer asked a Chinese respondent to explain what she thought the brochure was telling her to do if she were to have questions about the upcoming survey; she replied, "I can't comment on this because I don't know how the system works in this country." Later, when the respondent was asked to tell the interviewer in her own words what the ACS is about and why it is conducted, the respondent replied, "Due to democracy. The survey let residents make well-informed decisions. Democracy is the reason for conducting the survey." This particular type of response poses difficulty in the interpretation of interview results; the systematic differences in communication style between the language groups will be explored in more detail in Chan and Pan (forthcoming). The interview summaries of this study suggested that Asian respondents have a tendency to reinterpret the questions above and beyond their face value and become defensive in response to some of the direct and repetitive probes used in the cognitive interview. For instance, when one interviewer asked a typical cognitive probe to understand the thought process of a Chinese respondent, the participant responded as if he were being interrogated. "I don't have any bad ideas. I don't worry about the interview, the U.S. law is trustworthy, I am not afraid of that."

The major goal of the larger language pretesting project is to evaluate the translation quality of the brochures; hence, there was no built-in metric to evaluate the effectiveness of the cognitive interviewing method in a cross-cultural setting systematically, even though the interview summaries suggested there were issues among some non-English speakers in responding to some of the cognitive interviewing questions. As noted earlier, the lack of knowledge of the western survey culture among Asian respondents made it difficult to administer cognitive probes to some of the Asian respondents.

5. Summary and Conclusions

Our analyses show that a brochure is not the ideal format to deliver the important information for both non-English speakers and English speakers. Some respondents did not pay attention to supplemental materials in general and overlooked the brochure entirely. Others missed the target language text on the cover or the entire target language panel because of navigational issues due to the layout, placement of the text, and/or the small font used in the brochure. It is not customary for most non-English speakers to expect written materials in their own languages; many respondents treated the brochure as a trivial part of the mail content and are likely to overlook the language text.

The results indicated that when brochure format is chosen, to ensure it being noticeable and readable, it should be printed on high quality material and in font size large enough for older readers and those who are visually challenged. To indicate the presence of language text, respondents suggested the use of visual cues on either the envelope or the front cover of the brochure. Given there is no ideal way to place all the languages such that they will be equally easy to find in a brochure or such that the text will be printed large enough for all respondents to see, an alternate format other than a brochure (such as a large postcard that doesn't require the opening of an envelope and which allows for larger text) should be explored to present the translated materials.

Despite the less-than-ideal format, our results suggest the brochure removes the language barrier for our target language groups by informing them that the survey is coming, their response is mandatory and confidential and that language assistance is available to them. The information provided in the brochure did match the reasons provided by some respondents about why they found the brochure useful and effective. Interested respondents found such materials appropriate and informative. They felt respected and appreciated that their opinions were sought by the survey sponsors.

The Chinese and Korean respondents in this study are less interested than other language groups in survey participation as suggested by their lower intention to participate in future ACS compared to those of other language groups. Asian respondents provide clues that other non-English-speaking Asians like them are not interested in survey participation. Consistent with the social exchange theory, these Asian respondents who were not interested in survey participation perceived the cost of participating in ACS to outweigh the benefits, if any.

Our findings suggest that among cognitive interviewing participants who are less survey literate, the advance material was ineffective as participants did not seem to understand survey procedures or the purpose of advance mailing, and they had a very vague understanding of what was expected of them. Survey literacy will influence the effectiveness of the multilingual brochure among non-English speakers who come from a 'non-survey' culture.

Other clues and reasons provided by respondents about why other non-English speakers would not be interested in participating in the ACS include: literacy in respondents' own languages, their legal residency, and their living arrangements. Respondents from every language group uniformly suggested that undocumented residents are unlikely to participate in any government survey. Choldin (1994, p.230) summarized this phenomenon succinctly, "People in certain situations have good reasons to avoid contact with the government and that no amount of advertising and community relations will convince...them that it is safe and in their own interest to disclose themselves to the Census."

The data analyses for this study are based on English summaries of cognitive interviews that were conducted in target languages. It is difficult for us to explore whether the responses generated from these interviews were comparable to those conducted in English. Responses and much of the linguistic and cultural nuances in the interview process from participants had been interpreted and summarized by the language experts who make the cognitive interviews more seamless. Given that the language experts are not survey methodologists, this study did not include any systematic quality measurement

on the performance of the interviews, making it challenging to evaluate the potential issues encountered when applying the technique cross-culturally.

The findings in this study suggest that the cognitive test methodology holds much promise for conducting comparative analyses across different language groups, but this methodology is still in its infancy. The methodology should be carefully designed, a team of language experts and survey methodologists should be enlisted, and a standardized protocol should be followed and customized to the target language group so that the protocol is culturally appropriate. To improve the quality of cross-cultural cognitive interviews, it will be important to provide participants who are less survey literate with basic information about surveys in general before conducting the cognitive interviews. Researchers should consider incorporating an evaluation tool to examine the quality of cognitive interviews when applied cross-culturally.

6. Strengths and Limitations

In general, studies using data from large-scale surveys that are based on representative sampling methods can provide reliable estimates on the impact of survey design on survey response rates (Schwede, Blumberg and Chan 2005); such studies provide little context to understand why and how survey design and procedures such as multilingual advance materials will have an impact on survey participation. The in-depth qualitative analyses and findings in this study provided insightful information for us to develop a fuller understanding of why the multilingual brochure would succeed or fail to enhance ACS survey participation. It compliments and explains the findings from the split panel experiment conducted by the ACS Methods Panel at the U.S. Census Bureau, which explores the impact of the advance multilingual brochure on the responses from respondents who do not speak English very well.

The comparison reveals design issues that have universal impact on respondents' behavior and provides invaluable detail about other factors such as cultural differences that are out of the control of survey researchers, and which may affect the survey outcome. It highlights potential problems that interviewers may encounter when conducting cognitive interviews cross-culturally.

Due to the inherent nature of non-representative samples used in cognitive study, we are unable to generalize our results beyond the artificial laboratory environment; nonetheless, we are able to understand the rational thinking and reasoning behind potential respondents and non-respondents for their (lack of) intention to participate in a government survey.

7. Future Research

Although our study is unable to systematically evaluate how well the cognitive interviewing technique functions cross-culturally, it did highlight some potential challenges and problems when applying cognitive interviewing techniques to different language or cultural groups. Future cross-cultural cognitive pretesting studies should incorporate evaluation tools or develop metrics to assess the quality of cognitive interviews and respondents' answers.

Our results suggest that it is important for survey researchers to explore the ideal format to present advance materials in other languages. Researchers should explore the ideal mode of interview for respondents who are not survey literate and compare the data quality collected by a different mode. For non-English-speaking respondents who are survey and form illiterate, and are uncomfortable with telephone interview method, in-person interviewing methods may be more suitable and data quality may be better. Researchers need to explore whether a provision of basic survey knowledge will help improve the likelihood that survey-illiterate potential respondents will participate in a survey.

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