

Efficiency of Recruitment Methods to Recruit Monolingual Asian Participants for Cognitive Interviews¹

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Abstract

Recruitment of cognitive interview participants conventionally involves print or online advertisements, flyers, or “word-of-mouth” approach. Past research suggests that when recruiting among a population with limited English proficiency, some of these methods work better than others. However, these findings were observed from recruiting practices and recruiters’ debriefings rather than systematic analysis of recruitment data.

Using 845 recruitment records of Chinese and Korean speakers, this paper examines the efficiency of the common recruitment methods and provides recommendations for the optimal strategy of recruiting monolingual Asians for cognitive interviews. Efficiency is defined as reaching/recruiting potential respondents faster (“time efficiency”), reaching them in a broader scale (“reach-out capacity”), and recruiting a higher percentage of eligible monolingual respondents (“preference rate”). The recruitment data comes from a cognitive testing project conducted by the U.S. Census Bureau to pretest the Chinese and Korean translation of the American Community Survey (ACS) Language Assistance Guide.

Key Words: respondent recruitment, cognitive interview, monolingual Asians

1. Introduction

Cognitive interviewing is a tool to pretest survey questionnaires and materials. By examining a respondent’s thought process, interview findings can be used to improve the survey questions and the intended message (Willis, 2005; Presser et al., 2004). Recent studies have also used the cognitive testing technique to evaluate and pretest the translation of survey instruments and materials. Pan, Landreth, Park, and Schoua-Glusberg (2007) used cognitive interviews to evaluate Spanish, Chinese, Korean, and Russian translations of selected survey prenotification materials for the American Community Survey (ACS) and recommended a methodology of five steps, including enlisting language experts

¹ Disclaimer: This paper is released to inform interested parties of research and to encourage discussion of work in progress. Any views expressed on (statistical, methodological, technical, or operational) issues are those of the authors and not necessarily those of the U.S. Census Bureau.

to conduct cognitive interviews and using culturally appropriate interview protocols. Based on lessons learned from translating a questionnaire on tobacco use into Chinese, Korean, and Vietnamese, Forsyth, Kudela, Levin, Lawrence, and Willis (2007) also recommended conducting a cognitive interview pretest to evaluate the translation quality. In addition, Levin et al. (2009) successfully conducted Spanish language cognitive interviews for a dietary questionnaire (and a small number of English language interviews) and identified translation, culture-specific, and general design problems. All three studies recruited speakers of the target languages who spoke limited English since those are the characteristics of the intended audience for the translated materials.

Several large-scale pretesting of non-English questionnaires have recently been conducted by the U.S. Census Bureau. By following the pretesting standard and translation guidelines developed by Pan and de la Puente (2005), these studies used cognitive interviews to evaluate that the translation is appropriate at the lexical, syntactic, and pragmatic levels (Goerman et al, 2007, Pan et al, 2009, Carter, et al, 2010, Sha et al, 2012). As many as 129 cognitive interviews were completed in a target language, which required the recruitment of a large number of monolingual respondents.

Although all of these studies interviewed and recruited respondents who spoke limited or no English, the efficiency of the recruitment methods was not analyzed. The researchers sometimes documented difficulties that they encountered or described the characteristics of the respondents that they interviewed and that they were recruited using a variety of methods. Looking at research conducted about cognitive interview respondents, the selection of the respondents and how their characteristics influenced the results of the cognitive interviews seemed to be the primary concern of the researchers (Park & Wake, 2009; Goerman, 2010; Yuan et al., 2009). In a case study of pretesting for the U.S. Census Bureau bilingual Spanish/English questionnaire, Goerman and Caspar (2010) noted that respondent recruitment is part of the list of logistical issues that need to be considered in pretesting a survey translation. However, they also focused on the importance of respondent selection and identification. Nevertheless, there is some anecdotal evidence that the word-of-mouth method was efficient in recruiting eligible participants (Forsyth et al., 2007; Saleska et al., 2009; Sha et al., 2010). These findings were observed from recruiting practices and recruiters' debriefings rather than systematic analysis of recruitment data. Detailed discussions surrounding the methods of finding and recruiting these respondents and their effectiveness are limited. This may not be surprising because cognitive testing usually involves a small number of interviews, and such analysis require a comprehensive set of data on recruitment activities and a large number of potential recruits.

This paper affords the opportunity to study the efficiency of recruitment methods for reaching monolingual respondents for cognitive interviews. Using recruitment records from 845 cases of Chinese and Korean speakers who were screened in a multilingual cognitive testing study, we investigate the efficiency of four common techniques to recruit cognitive interview participants: newspaper advertisement,

physical flyer, electronic dissemination, and word of mouth. Efficiency is defined as reaching/recruiting² potential respondents faster (“time efficiency”), reaching them in a broader scale (“reach-out capacity”), and recruiting a higher percentage of eligible monolingual respondents (“preference rate”). There are three research questions that are addressed:

Q1. Which method is the most time efficient?

Q2: Which method presents the best reach-out capacity?

Q3: Which method demonstrates the highest preference rate?

2. Methodology

The recruitment data were collected for a large-scale cognitive interviewing study conducted by the U.S. Census Bureau. A total of 258 cognitive interviews (129 Chinese and 129 Korean) were conducted to pretest the Chinese and Korean translations of the ACS Language Assistance Guide (LAG). The cognitive interviews took on average 60 to 90 minutes and spanned three phases. Each phase consisted of 40 to 48 interviews, completed in two rounds of interviewing. From December 2009 to July 2011, recruiters contacted 1,084 Chinese and Korean speakers and screened them for eligibility to participate in the cognitive interviews. By the end of the recruitment period, we created a database with 845 cases where all required information for this study are available, including recruitment activity data, contact and screen records, and answers to screening questions.

Eight recruiters who were of Chinese or Korean origins and native speakers of the languages recruited potential respondents in the greater Washington, DC area, Illinois, and North Carolina. While the sites were selected because of their geographic proximity to the experienced cognitive interviewers and to control overall cost, the concentration of the Asian population (Aoki & Takeda, 2009; Min, 2006) in these locations provides a pool of Chinese and Korean speakers for this study.

The goal of the recruitment was to obtain a combinative set of respondents who meet both linguistic and demographic criteria for the translation pretesting. Not only the respondents need to be adult monolingual³ Chinese or Korean speakers,

² Two different verbs are used to describe the recruitment measures respectively. “Reach” emphasizes on a method’s capacity of spreading words to the audience, thus it is used for “time efficiency” and “reach-out capacity” measures. “Recruit” on the other hand focuses on the result that to demonstrate which method is more likely to produce an eligible respondent recruitment, thus it is used for “time efficiency” and “preference rate” measures.

³ The 258 cognitive interview respondents were selected from the pool of potential participants who were screened for their English proficiency. Monolingual qualification of potential participants was determined through their responses to a screening question. This screening question asked participants to self-report whether they read English very well, well, not well, or

they also need to fit into certain demographic categories. The recruitment targets were established based on the characteristics of respondents from linguistically-isolated households⁴ who participated in American Community Survey (ACS) computer-assisted personal interviews (CAPI) conducted in 2006. As seen in Table 1, there are a range of monolingual respondents required for each category. For example, among 20 – 24 monolingual Chinese or Korean speakers interviewed in each round, 9-12 of them should have an educational attainment lower than high school, 8-10 with a high school diploma and 3-4 that are college graduates. Other demographic characteristics, such as age, place of birth, year of entry into the United States, and dialect preference (for Chinese speakers only), also need to be fulfilled with required quota by the final selection of interview respondents. Because each phase of interviewing focused on a specific set of ACS questions, recruitment criteria were sometimes modified. For example, we had to recruit working and nonworking monolingual speakers to test the translation of the Industry and Occupation questions. More details about recruitment criteria can be found in Sha, Park, and Pan (2012).

Table 2 describes the four recruitment methods used by the recruiters. These are common methods for recruiting cognitive interview participants, and each method requires recruiters to engage in specific activities. All forms of advertising shared the following message⁵: (1) directed toward Chinese and Korean speakers; (2) stated the purpose of the study; (3) mentioned the length of the interview and the incentive; and (4) specified the study sponsor. We did not advertise on TV or radio because they are cost prohibitive.

To analyze the efficiency of these methods, recruiters recorded details about the following:

- 1) Recruitment effort: recruitment method, specific activities, total time spent *per recruitment event*, and applicable cost
- 2) History of contacts per case: where a potential respondent heard about the study (the source of information), total time spent *per contact*, and outcome of the contact
- 3) Potential respondents' answers to the screening questionnaire: demographics and eligibility.

not at all. When a Chinese or Korean speaker self-reported that he or she read English not well or not at all, this individual was classified as monolinguals for the purpose of this study and became eligible to be selected for cognitive interviews. All cognitive interview respondents we selected answered “not well” or “not at all” for both English reading and speaking skills, except one Korean and seven Chinese speakers who reported “well” for speaking. For more discussion on monolingual speakers, see Park and Son (forthcoming).

⁴ In the ACS, a linguistically isolated household is one in which all adults have some limitation in communicating in English. It is defined as a household where no household member age 14 or over speaks only English or speaks another language and speaks English “very well” based on self report. (Fish 2010)

⁵ The recruitment advertisements were designed to not disclose the monolingual qualification to participate in the interview. Due to a miscommunication among the recruiters, the Chinese language advertisement contained a phrase that referred to “limited English language ability” (英文能力有限).

Table 1: Recruitment Targets for One Round of Cognitive Interviews

Characteristic	Recommended Percentage Range	Target Percentage to Recruit	Target Number to Recruit	Range of Recruits
Educational attainment				
Completed level of school/degree that is...				
less than high school graduate	40%–50%	45%	10.8	9–12
high school graduate and no college degree	30%–40%	40%	9.6	8–10
college graduate	Less than 20%	15%	3.6	3–4
Place of Birth				
Born in China	70%–80%	75%	18	16–19
Born in Taiwan	Attempt to recruit	10%	2.4	2–3
Born in United States or Other	Less than 20%	15%	3.6	2-3
Year of Entry				
Living in United States 1 year ago	Nearly all	100%	24	20–24
Not living in United States 1 year ago	Minimum	0%	0	0–2
Gender				
Male	N/A	50%	12	10–14
Female	N/A	50%	12	10–14
Age				
34 or younger	10%–20%	15%	3.6	3–4
35 – 54	30%–40%	40%	9.6	8–10
55 or older	40%–50%	45%	10.8	9–11
Language of Administration*				
Mandarin	N/A	70%	16.8	14–18
Cantonese	N/A	30%	7.2	6–7
Total Number of Participants				20–24

The data allowed us to calculate:

- 1) the total time spent on each recruitment event (attempts) for the four recruitment methods,
- 2) the amount of time used to contact and screen potential respondents,
- 3) the frequency of recruitment events (attempts),
- 4) the number of inquiries obtained from each recruitment source, and
- 5) whether the screening questionnaire was completed.

Table 3 presents how efficiency is calculated using three measures. First, **time efficiency** calculates time spent on recruiting respondents: the less time spent, the better time efficiency a recruitment method has. It can be examined using recruitment activity time (Time Efficiency 1, Formula A1) and respondent contact time (Time Efficiency 2). From the preliminary research Liu, Yuan, Park and Sha (2010) conducted, we realized that these are two separate concepts, but complement each other in explaining the time spent for reaching/recruiting research participants. For example, the recruitment activity of placing a newspaper advertisement requires developing the wording of the advertisement and coordinating for its publication in the target newspapers. The time spent could

be minimal compared with the time spent responding to inquiries (contacts) generated progressively from the newspaper advertisement and screening for eligibility. In addition, because each contact can result in completing or not completing the screening questionnaire, we calculated Time Efficiency 2 by screener completion status to avoid any noise introduced by this systematic difference: Time Efficiency 2a for complete screeners (Formula A2a) and Time Efficiency 2b (Formula A2b) for incomplete screeners.

Table 2: Recruitment Activities under Each Recruitment Method

Recruitment Method	Activities
Newspaper Advertisement	Place advertisement in popular ethnic, Chinese or Korean language newspapers in the recruitment regions. ⁶
Physical Flyer	Post flyers at locations frequented by potential respondents, such as churches with a large congregation of Chinese and Korean origins, ethnic grocery stores, restaurants, and other businesses.
Electronic Dissemination	Disseminate recruitment messages electronically, such as through mailing lists, internet community of ethnic groups, and online forums subscribed to by a large number of Chinese or Korean speakers.
Word-of-Mouth	Ask for referrals from community leaders or other key contacts. Directly contact people known from a personal network. Recruit participants in group gatherings. Spread the recruitment messages by word of mouth.

Table 3: Efficiency Measurement and Calculation Formula

Efficiency Measurement	Calculation Formula
Time Efficiency 1:	$A1 = \frac{\text{tot.recruit time}}{\text{tot.\# of inquires}}$
Time Efficiency 2a:	$A2a = \frac{\text{tot.contact time on complete screener cases}}{\text{tot.\# of complete screeners}}$
Time Efficiency 2b:	$A2b = \frac{\text{tot.contact time on incomplete screener cases}}{\text{tot.\# of incomplete screeners}}$
Reach-Out Capacity:	$B = \frac{\text{tot.\# of inquires}}{\text{tot.\# of recruitment events}}$
Preference Rate:	$C = \frac{\text{tot.\# of monolingual Rs}}{\text{tot.\# of screened Indvs.}}$

⁶ Washington Chinese News, Asian Gazette and Korea Daily in Greater Washington DC area; World Journal and Kyochoro USA in Illinois; China Star in North Carolina.

Reach-out capacity (Formula B) is the second measure. The greater the reach-out capacity, the more efficient a recruitment method is in reaching potential respondents. A higher number means stronger reach-out capacity. It is calculated using a ratio between the number of inquiries people made after seeing the recruitment message and the number of recruiting events that took place when using a recruitment method, as reported by the recruiters. By “recruitment event,” we mean each instance a recruiter carries out recruitment activities, such as submitting a request to publish recruitment message(s) on the a newspaper, taking a trip to post flyer(s), or e-mailing information to a mailing list or target audience(s).

The third measure is called **preference rate** (Formula C). It is estimated by the percentage of the number of monolingual speakers recruited among the number of individuals ever screened. A larger percentage of qualified respondents demonstrates a better preference rate.

3. Findings

Figure 1 illustrates the efficiency of the four recruitment methods. Individual data used to calculate each efficiency measure is provided in Table 4 for informational purposes.

3.1 Newspaper Advertisement

In terms of time efficiency and reach-out capacity, advertisements in ethnic in-language newspapers popular in the recruitment region demonstrate a dominant advantage of reaching/recruiting potential participants. This method is the quickest way to spread the recruitment message to the target population. On average, we were able to receive a response to the advertisement after investing 0.8 minutes of recruitment activity. It took an average of 7 minutes to contact and complete a screener with a potential respondent, but 1.4 minutes to contact and attempt to complete the screener. The only exception is the Time Efficiency 2a measure (contact time, screener complete) when comparing the efficiency of newspaper advertisement versus physical flyer. Figure 1 shows that the physical flyer method takes slightly less time (6.5 minutes) than newspaper advertisements. As a whole, however, newspaper advertisement is the most time efficient method to reach/recruit respondents.

A total of 237 inquiries were generated after newspaper advertisements were published six times in Chinese or Korean language newspapers. Using Formula B to calculate reach-out capacity, every time a recruiter released the recruitment message(s) through a newspaper advertisement, it generated 39.5 inquiries about the study. This is in strong contrast with the reach-out capacity of physical flyers (2.0), electronic dissemination (3.0), and word of mouth (1.8). The results suggest that when attempting to spread messages to the masses, newspaper advertisement reaches people at a very broader scale. A downside of using the newspaper advertisement for recruitment is its low preference rate. As illustrated in Figure 1,

the preference rate is 54%, which according to Formula C means that only about half of the screened individuals (224 persons as indicated in Table 4) reached by newspaper advertisement match the selection criteria and were qualified for the interview. In other words, about half of the screened individuals were ineligible.

3.2 Physical Flyer

The physical flyer recruitment method can be more time efficient than other methods, depending on the type of time efficiency measures being considered. It is the most time consuming way to spread the recruitment message. Using Formula A1 for Time Efficiency 1, on average, every 13.9 minutes of recruitment effort only contributes to one inquiry about the study. When Time Efficiency 2a is considered (contact time, screener complete), this method took 6.5 minutes, which is the least time spent among all recruitment methods to complete a screener with a potential respondents.

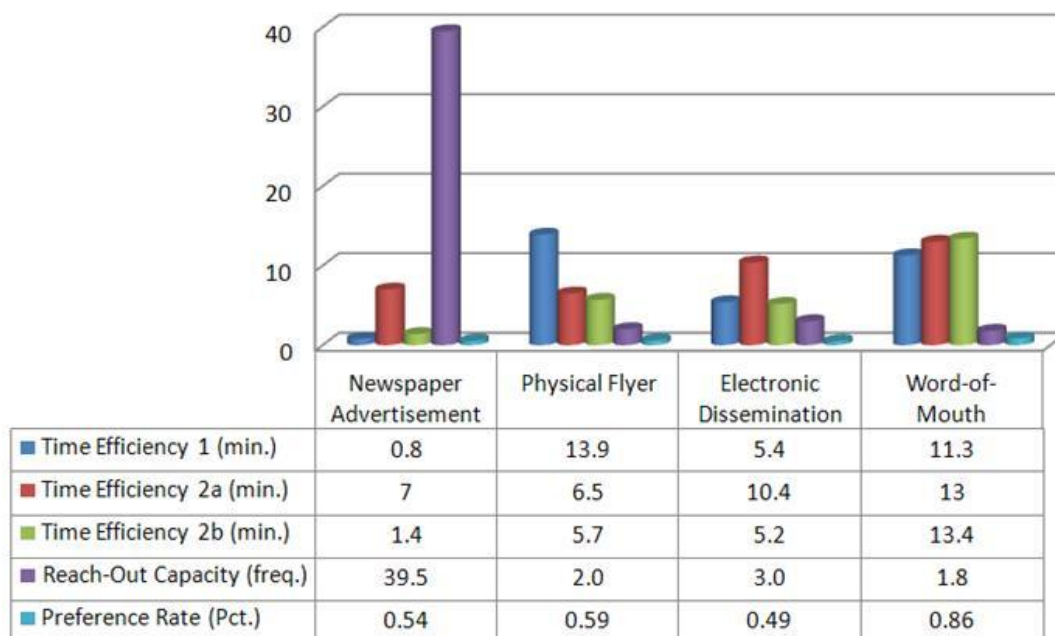


Figure 1: Efficiency Measures of Recruitment Methods

Table 4: Description of Data by Recruitment Method

Recruitment Method	Recruit Time (min.)	Contact/Screen Time (min.)	# of Recruit Events	# of Inquiries	# of Complete Screeners	# of Incomplete Screeners
Newspaper Advertisement	200	1,585	6	237	224	13
Physical Flyer	2,675	1,228	94	192	104	17
Electronic Dissemination	754	1,267	46	140	175	36
Word-of-Mouth	3,113	3,594	150	276	258	18

The Time Efficiency 2b measure shows that physical flyer performs moderately in terms of time spent on screening interested individuals, but with no screener completed (5.7 minutes). Its time efficiency shows a similar pattern with the electronic dissemination method (5.2). However, it is less time efficient than newspaper advertisement (1.4), but much more time efficient than the word-of-mouth method (13.4).

In addition to the disadvantage of efficiency in recruitment time, this approach also exhibits a weak reach-out capacity. Every trip a recruiter took to post flyers only resulted in two inquiries on average. The electronic dissemination and word-of-mouth methods are equally weak in their reach-out capacity, at three and 1.8 inquiries, respectively. In addition, the preference rate of this approach is 59%, which is close to the rate for newspaper advertisement (54%), higher than electronic dissemination (49%), and much lower than the word-of-mouth method (86%).

3.3 Electronic Dissemination

Disseminating recruitment messages by electronic means, such as via Chinese or Korean online forums or mailing list, takes on average 5.4 minutes of recruitment effort to receive an inquiry as measured by Time Efficiency 1. However, this approach takes relatively more time to contact and complete a screener with potential respondents (Time Efficiency 2a = 10.4 minutes) when compared with newspaper advertisement (7) and physical flyer (6.5) methods. When the screener is incomplete (Time Efficiency 2b = 5.2 minutes), electronic dissemination demonstrates a better time efficiency than the word-of-mouth method (13.4), but it is a rather poor performance compared with newspaper advertisements (1.4). As reported previously, the physical flyer method has similar time efficiency when the screener is incomplete, at 5.7 minutes.

The reach-out capacity of this approach resulted in three inquiries, which is far behind the newspaper advertisement method (39.5), but displays a slight advantage compared with the physical flyer (2) and word-of-mouth method (1.8). In terms of preference rate, electronic dissemination has the lowest preference rate (49%) among all four recruitment methods. Of the 104 individuals we screened, only 51 were monolingual speakers who qualified for the study.

3.4 Word of Mouth

In all measures of time efficiency and reach-out capacity, the word-of-mouth approach was least efficient. It took longer to reach (11.3 minutes) and contact potential respondents (13 and 13.4 minutes), and it also generated the least inquiries (1.8). Nevertheless, the word-of-mouth recruitment method has the highest preference rate at 86%. Specifically, among the 258 individuals screened because of this method, 222 of them were identified to be qualified monolingual respondents.

4. Discussion

Among the four recruitment methods we evaluated, newspaper advertisement has the most dominant reach-out capacity and is most time efficient (with the exception of Time Efficiency measure 2a using physical flyers). Given the particular requirement for recruiting only monolingual respondents for these non-English cognitive interviews, it may not be surprising that advertisements in local popular Chinese and Korean language newspapers attracts a wide range of speakers of those languages. Because of language barriers, they likely have limited access to English language media. Newspapers in their native language may be a major source of information for them and are easily accessible. Even though newspaper circulation has decreased over time, it is still a media platform that delivers news to a broad audience and can be obtained inexpensively by respondents.

Interestingly, the electronic dissemination method did not lead to a high reach-out capacity since digital technology has grown. It has a similar reach-out capacity like physical flyers and the word-of-mouth methods. Nevertheless, when analyzing the same data set by respondent characteristics, Park, Liu, Sha, and Yuan (2011) reported that the electronic dissemination method tended to reach younger, higher educated people.

In addition, time needed to coordinate the printing of an advertisement with a newspaper publisher is conceivably less than time spent for recruitment methods that rely on traveling to certain locations to post flyers or building trust through the word-of-mouth method. The same observation can be made about recruitment by the electronic dissemination method, which ranks the second most time efficient after newspaper advertisement. However, this approach takes relatively more time to contact and complete a screener with potential respondents (Time Efficiency 2a) when compared with newspaper advertisement and physical flyer methods. A possible explanation is that news or messages from the internet is commonly considered less credible than traditional media platforms, such as newspapers (Flanagin & Metzger, 2000; Koo & Skinner, 2005). Based on this assumption, when screening individuals who learned about the study from electronic sources, it likely requires more time to demonstrate the legitimacy and value of the study so that they feel comfortable completing the screener. In contrast, physical flyers appear to be the least time efficient method to disseminate the recruitment message (Time Efficiency measure 1). The physical flyer method requires that recruiters travel to locations frequented by the target population, such as ethnic grocery stores, churches, and nail salons. They also have to spend time researching about these locations and negotiating to have the flyers posted.

We also found that the newspaper advertisement, physical flyers, and electronic dissemination methods do not have a high preference rate and only about half of the screened respondents matched the selection criteria. Among the three, electronic dissemination has the lowest preference rate. Because of space

constraints, the information contained in the recruitment message is usually kept brief in the newspaper advertisement, flyers, and electronic messages. Potential respondents might be intrigued to call based on certain information they saw in the recruitment message, such as the monetary incentive, but they might not have the characteristics that we are looking for. An unusual challenge associated with the electronic dissemination method is the gate keeping features of online mailing lists, forums, and communities. Some can be accessed by members only.

The word-of-mouth method has low time efficiency and weak reach-out capacity as compare with other methods. Most of the activities were carried out on an individual or small group basis, instead of on a large scale. Recruiters would usually appear in person to recruit participants in a group setting or contact people through referrals from various sources. All of these interactions demanded carefully planned communications and relied on using interpersonal skills to build trust because this was the first time potential respondents had heard the recruitment message. More time was spent talking to potential respondents or key informants, and one in-person visit might not be fruitful. Even though recruiting respondents in this way is a relatively lengthy process, the word-of-mouth method has the highest preference rate. In other words, it is most efficient in recruiting eligible respondents. As discussed earlier, when recruiting participants using an interpersonal approach like this, the acquaintance and trust between the recruiter or the informants and potential respondents are great boosters for screener completion. Respondents who are involved in the study this way are also good resources and starting points to carry out snowball recruitment (Bailey, 1994; Penrod, Preston, Cain, & Starks, 2003; Biernacki & Waldorf, 1981).

5. Recommendations and Future Research

Based on the results from this study, in general, we recommend two steps to recruit respondents for cognitive interviews. The first step is to build up a pool with a sufficient number of screened individuals available from which to select. To accomplish this goal, we suggest use methods with good time efficiency or strong reach-out capacity, which can reach potential respondents in a timely and extensive manner. In the current study, we found that newspaper advertisement is best suited to serve this purpose. Once a recruitment criterion is almost fulfilled, the next step is to purposively search individuals with hard-to-recruit characteristics. Implementing a method with a high preference rate is likely to be successful, which is the word-of-mouth method as shown in our analysis. It recruits more qualified respondents.

Adopting one recruitment method over another is a decision to be made based on the specific needs of the research project. For example, if a project has a tight schedule and needs to reach/recruit a wide range of respondents in a short period of time, approaches that render high time efficiency and reach-out capacity would perform best. Recruiters can reach/recruit a lot of potential respondents using newspaper advertisements while spending the least amount of time. Electronic

dissemination is also a good option to spread the recruitment message because it requires less time during the recruitment activities (e.g., sending an e-mail instead of an in-person visit). The caveat about using newspaper advertisement and electronic dissemination to reach/recruit a lot of potential respondents quickly is that the eligibility criteria cannot be too specific.

If a project is designed to interview respondents with a narrow set of selection criteria that are hard to reach/recruit, it may be worthwhile to search for participants with the desired characteristics using methods with a high preference rate. In this study, the word-of-mouth approach proved to be the best way of recruiting qualified monolingual respondents. By applying this recruitment method, recruiters can purposively ask referrals for particular types of individuals needed or render the needed characteristics within a personal network. They can increase the screener completion rate during in-person visits or by motivating potential respondents through interpersonal influences.

There are several areas for future research. In our study, the recruitment activities occurred in a few areas in the nation and two languages are included in the data set. However, we only examined a general pattern of the recruitment efficiency measures at the aggregate data level, not at the subgroup levels. We plan to deepen the analyses by investigating these efficiency measures according to the language groups (Chinese vs. Korean) and recruitment regions (the greater DC area, Illinois, and North Carolina) to see if we can replicate the findings. We will also probe the effect of having recruiters with strong ties to the ethnic community to see how they contribute to the recruitment success.

The word-of-mouth method deserves more attention. In our study, the recruitment activities grouped under the word-of-mouth method are referral based and potential respondents may be reached/recruited through community organizations, recruiters' network, or specific groups and events. These can be analyzed on their own to provide more detailed recommendations for recruiting monolingual respondents. As an example, Patrick, Prunchno, and Rose (1998) evaluated "support groups" and "formal service agencies" separately when recruiting minority respondents and were able to compare their effectiveness in terms of response rate, time spent, and resources (average cost per respondent). The efficiency level of each recruitment activity under the four recruitment methods is another issue of interest. A specific activity may work better individually or become more efficient when used in conjunction with another activity.

Furthermore, during the recruitment process, we noticed that on some occasions, the recruitment methods did not take effect independently. A potential respondent might decide to participate because they were reached by multiple methods. For example, reaching/recruiting participants by asking for referrals from a key informant in the community is a commonly applied word-of-mouth method. When seeking help from a key informant, in addition to promoting the study verbally, the recruiter may also send electronic messages beforehand or provide

physical flyers to assist the referral. If a potential respondent expressed an interest in participating while mentioning the key informant as how they learned about the study (the source), the perimeter of our research is to record it as the word-of-mouth method being applied. Other possible methods, such as physical flyer or electronic message, were ignored because they did not immediately precede the respondent's decision to participate. To examine the effect of multiple sources of recruitment, more details are needed about the events occurring during the recruitment process. An example would be if a person learned about the study solely from one or multiple sources and in what chronological order. Future large-scale respondent recruitment efforts should take this issue into account when designing how the recruitment data is collected.

Another future design consideration is collecting more details to better understand reach-out capacity. The way it is calculated now is based on the frequency of how often recruitment events happened and the total number of inquiries received from this source, but no details about specific activities carried out and the quantity of messages disseminated. For example, a recruiter may report that she in total took 30 trips to post flyers. Thus, the frequency of recruitment events recorded is 30 times. However, there is no further information about how many locations the recruiter stopped in each recruitment trip, or how many flyers were posted at each location. This is to say that the efficiency of the physical flyer method can be under or over-reported depending on the numbers of flyers posted in each recruitment event.

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References

- Aoki, A. L., & Takeda, O. (2009). *Asian American Politics*. Cambridge, UK: Polity Press.
- Bailey, K. D. (1994). *Methods of Social Research*. New York: Free Press.
- Biernacki, P., & Waldorf, D. (1981). Snowball Sampling: Problems and Techniques of Chain Referral Sampling. *Sociological Methods & Research*, 10, 141-63.
- Carter, G., Schoua-Glusberg, A., Sha, M., McAvinchey, G., & Rodriguez, S. (2011). *Cognitive Testing of Spanish Language Translation of Selected Questions in the American Housing Survey (AHS)*. Center for Survey Measurement, Research and Methodology Report Series (Survey Methodology #2011-01). U.S. Census Bureau. Available online at: <http://www.census.gov/srd/papers/pdf/rsm2011-01.pdf>
- Fish, S. (2010). *Assessment of Language Needs and Language Assistance Resources in the 2006 – 2008 Computer Assisted Telephone Interviewing Operation*. American

- Community Survey Research and Evaluation Program. U.S. Census Bureau. Available online at: http://www.census.gov/acs/www/Downloads/library/2010/2010_Fish_02.pdf
- Flanagin, A. J., & Metzger, M. J. (2000). Perceptions of Internet Information Credibility. *J&MC Quarterly* 73(3), 515-540.
- Forsyth, B. H., Kudela, M. S., Levin, K., Lawrence, D., & G. B. Willis, G. B. (2007). Methods for Translating an English-Language Survey Questionnaire on Tobacco Use into Mandarin, Cantonese, Korean, and Vietnamese. *Field Methods* 19, 264-283.
- Goerman, P. (2010). *Number and Nationality of Spanish-Speaking Immigrant Respondents for U.S. Cognitive Testing Studies*. In JSM Proceedings, 65th Annual Conference of the American Association for Public Opinion Research (AAPOR), Alexandria, VA: American Statistical Association, pp. 5924-5937.
- Goerman, P.L. and Caspar, R.A. (2010). Managing the Cognitive Pretesting of Multilingual Survey Instruments: A Case Study of Pretesting of the U.S. Census Bureau Bilingual Spanish/English Questionnaire. In *Survey Methods in Multinational, Multiregional, and Multicultural Contexts* (pp. 75–90). Hoboken, NJ: Wiley and Sons, Inc.
- Goerman, P., Caspar, R., Sha, M., McAvinchey, G., & Quiroz, R. (2007). Census Bilingual Questionnaire Research. Final round 1 report. Study Series (Survey Methodology #2008-1). Statistical Research Division, US Census Bureau. Retrieved May 8, 2009, from <http://www.census.gov/srd/papers/pdf/ssm2008-01.pdf>
- Koo, M., & Skinner, H. (2005). Challenges of Internet Recruitment: A Case Study with Disappointing Results. *Journal of Medical Internet Research*, 7(1), E6.
- Levin, K., Willis, G. B., Forsyth, B. H., Norberg, A., Stapleton Kudela, M., Stark, D., & Thompson, F. E. (2009). Using Cognitive Interviews to Evaluate the Spanish-Language Translation of a Dietary Questionnaire. *Survey Research Methods*, 3, 13-25.
- Liu, L., Yuan, M., Park, H., & Sha, M. (2010). A Preliminary Investigation on Efficiency of Recruitment Strategies to Reach Monolingual Chinese and Korean-Speaking Participants for Cognitive Interviews. Presented at the 29th Annual Conference of the Southern Association for Public Opinion Research Conference. Raleigh, NC.
- Min, P. G. (2006). *Asian Americans: Contemporary Trends and Issues*. Thousand Oaks, CA: Pine Forge Press.
- Pan, Y., & de la Puente, M. (2005). *Census Bureau Guideline for the Translation of Data Collection Instruments and Supporting Materials: Documentation on How the Guideline Was Developed* (Statistical Research Division Research Report Series, Survey Methodology #2005-06). Washington, DC: U.S. Census Bureau.
- Pan, Y., Landreth, A., Hinsdale, M., Park, H. & Schoua-Glusberg, A. (2009). *Methodology for Cognitive Testing of Translations in Multiple Languages*. Statistical Research Division Research Report Series (Survey Methodology #2008-02). U.S. Census Bureau. Available online at: <http://www.census.gov/srd/papers/pdf/ssm2008-02.pdf>.
- Pan, Y., Sha, M., Park, H., & Schoua-Glusberg, A. (2009). *2010 Census Language Program: Pretesting of Census 2010 Questionnaire in Five Languages*. Statistical Research Division Research Report Series (Survey Methodology #2009-01). U.S. Census Bureau. Available online at: <http://www.census.gov/srd/papers/pdf/rsm2009-01.pdf>.
- Park, H., Liu, L., Sha, M. & Yuan, M. (2011, May). *Do Different Recruitment Methods Reach Different People?* In JSM Proceedings, 66th Annual Conference of the American Association for Public Opinion Research (AAPOR), Alexandria, VA: American Statistical Association, pp. TBD.

- Park, H., & Wake, V. (2009). *Asians - Are They the Same? Findings from Cognitive Interviews with Chinese, Korean and Vietnamese Americans*. Proceedings from the Annual Conference of the American Association for Public Opinion Research, 6000-6012. Hollywood, FL.
- Park, H. & Son, J. (forthcoming). *Who is Truly Monolingual?* Paper accepted at 67th annual conference of the American Association for Public Opinion Research, Orlando, FL.
- Patrick, J. H., Pruchno, R. A., & Rose, M. S. (1998). Recruiting Research Participants: A Comparison of the Costs and Effectiveness of Five Recruitment Strategies. *The Gerontologist*, 38(3), 295-302.
- Penrod, J., Preston, D. B., Cain, R. E., & Starks, M. T. (2003). A Discussion of Chain Referral as a Method of Sampling Hard-to-Reach Populations. *Journal of Transcultural Nursing*, 14(2), 100-107.
- Presser, S., Rothgeb, J., Couper, M. P., Lessler, J. T., Martin, E., Martin, J., & Singer, E. (2004). *Methods for Testing and Evaluating Survey Questionnaires*. Hoboken, NJ: John Wiley & Sons, Inc.
- Saleska, E. L., Schoua-Glusberg, A., Alvarado, H. A., Hinsdale-Shouse, M. A., Pan, Y., Park, H., Wake, V., & Yuan, Y. M. (2009). Recruiting Survey Respondents with Limited or No English Competency - Lessons Learned from American Community Survey (ACS) Cognitive Interviews. Presented at the *43rd International Field Directors and Technologies Conference*. Delray Beach, FL.
- Sha, M., McAvinchey G., Rodriguez S., & G. Carter. (2010). *Respondent Recruitment, Interviewing and Training: Lessons Learned from a Spanish Language Cognitive Interviewing Project*. In JSM Proceedings, 65th Annual Conference of the American Association for Public Opinion Research (AAPOR), Alexandria, VA: American Statistical Association, pp. 6372-6381.
- Sha, M., Park, H., & Pan, Y. (2012, March). *Translation Review and Cognitive Testing of American Community Survey (ACS) Language Assistance Guides in Multiple Languages*. Report prepared for the U. S. Census Bureau.
- Willis, G. B. (2005). *Cognitive interviewing: A Tool for Improving Questionnaire Design*. Thousand Oaks, CA: Sage.
- Yuan, Y. M., Wake, V., Park, H., & Nguyen, L. (2009). Conducting Cognitive Interviews with Linguistically Isolated Asian Populations. Presented at the *43rd International Field Directors and Technologies Conference*. Delray Beach, FL.