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**The American Community Survey (ACS) en Español:
Using Cognitive Interviews to Test the Functional
Equivalency of Questionnaire Translations**

Lorena Carrasco
(Currently in the Decennial Management Division)*

Statistical Research Division
U.S. Bureau of the Census
Washington D.C. 20233

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**Lorena Carrasco, U.S. Census Bureau
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ABSTRACT

This study represents the U.S. Census Bureau's first attempt to apply known pre-testing techniques as developed in the monolingual English context to the translation of one of its demographic surveys. The Spanish translation of the American Community Survey (ACS) Computer-Assisted Personal Interview (CAPI) instrument was used to conduct cognitive interviews. The research question was to determine how Spanish speaking respondents understood key terms and questions, and whether those interpretations were consistent with the meaning of the English questionnaire. Spanish questions whose meaning reflected the English content were considered to be functionally equivalent. That is, they were considered to be measuring the same construct without cultural or linguistic interference (Smith 2002).

The report documents linguistic and questionnaire design challenges that are unlikely to be unique to the ACS Spanish instrument; rather they are hypothesized to be consistent across Spanish questionnaire translations. It is also hypothesized that these issues do not result from inadequate translations or poor translation techniques, but rather stem from lack of pretesting.

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EXECUTIVE SUMMARY

Anecdotal information has suggested the existence of potential sources of non-sampling error that may affect the quality of data obtained in foreign languages or data collected from respondents with limited English proficiency; however, no empirical data were previously available to assess the nature and extent of such sources of error. Little is known regarding the efficacy of current methodologies for collecting data from linguistic minorities. These methodologies go beyond questionnaire translations that function as measurement instruments, and include pre-testing techniques, bilingual interviewer training, interpreter testing and selection, etc.

This study represents the U.S. Census Bureau's first attempt to apply known pre-testing techniques as developed in the monolingual English context to the translation of one of its demographic surveys. The Spanish translation of the American Community Survey (ACS) Computer-Assisted Personal Interview (CAPI) instrument was used to conduct cognitive interviews. The research question was to determine how Spanish speaking respondents understood key terms and questions, and whether those interpretations were consistent with the meaning of the English questionnaire. Spanish questions whose meaning reflected the English content were considered to be functionally equivalent. That is, they were considered to be measuring the same construct without cultural or linguistic interference (Smith 2002).

The report documents linguistic and questionnaire design challenges that are unlikely to be unique to the ACS Spanish instrument; rather they are hypothesized to be consistent across Spanish questionnaire translations. It is also hypothesized that these issues do not result from inadequate translations or poor translation techniques, but rather stem from lack of pretesting.

- How do Spanish speaking respondents interpret the meaning of key terms and questions, and are those interpretations consistent with the English meaning?

About three-fourths of Spanish questions were considered to be functionally equivalent to the English language CAPI ACS. That is, the meaning of the English question is adequately conveyed in the Spanish question. For example if an English question asks about boarders, and the Spanish question asks about students, then the Spanish question is not considered to be functionally equivalent to the English question.

- What linguistic issues may contribute to lack of functional equivalence?

Use of words in the target language (i.e., Spanish) with pre-existing bias leads respondents to interpret those words within a different cultural frame of reference. Source language (i.e., English) terms that do not translate into the target language pose additional challenges because the respondent might not have encoded such concepts. The challenge for terms that can be translated in a variety of ways is finding which variation is most consistently understood as intended.

- What questionnaire design issues may compound the issue of functional equivalence?

Mapping responses to the pre-coded categories may be difficult if the categories do not reflect the responses offered by Spanish speakers, which may be different from those offered by English speakers. Question-order effects may reveal different patterns for English and Spanish speakers, depending on the topic and the order in which questions are asked. Automated instruments pose programming challenges because logic for fills in Spanish needs to be defined using a different set of variables than those used to define English fills.

- How can we improve the functional equivalence of questionnaire translations?
 1. Pretest questionnaire translations before they are fielded to assess how respondents interpret key terms, questions and response categories, and to determine whether those interpretations are consistent with the English content.
 2. Research the best way to express source language (i.e., English) terms or concepts that are not translatable or that may be translated in a number of different ways.
 3. Keep proper nouns in English. Linguists refer to this process as “borrowing.” For example, Social Security is a proper noun and the name of a U.S. institution. Translating this name leads almost all respondents to misinterpret the meaning of this term; however, borrowing the English name appears to be more effective in conveying the desired meaning.
 4. Avoid using false cognates, as these can lead to coding error. For example, the word “colegio” in Spanish looks and sounds like the English word “college,” but the Spanish word is a vague term that could refer to any type of school (and therefore grade level).
 5. Define logic for Spanish fills using Spanish grammar rules. For example, the English fill for a possessive adjective (your/his/her) is defined according to subject (self or proxy) and sex (if proxy). The same fill in Spanish would need to be defined based on the number (singular or plural) of the noun.
 6. Use empirical methods to address intralanguage variation. For example, use cognitive interviews or focus groups to determine which words are most consistently understood by different subgroups of the target language population. Then aim is to use decontextualized language. That is, use generic words that most speakers of a language will understand regardless of class, origin, level of education, etc.

INTRODUCTION

This report documents the results of a pioneering study to test the functional equivalence of Spanish questionnaire translations. Cognitive interviews were used to determine how respondents interpreted the translation of key questions or terms, and to determine whether respondents' interpretations were consistent with the source language (English) questionnaire. This research represents a milestone in the development of the Census Bureau's blueprint for obtaining high quality data in foreign languages as well as data collected from persons with limited English proficiency. The blueprint consists of four interrelated components:

- (1) Translation guidelines
- (2) Pretesting standards
- (3) Quantitative and qualitative research
- (4) Sociolinguistic research on multiple language use

The blueprint seeks to apply known scientific methodologies to the development and implementation of bilingual or multilingual questionnaires to ensure data collected in foreign languages are of high quality. The study discussed herein represents the Census Bureau's first attempt to apply cognitive interview techniques to existing translations of demographic surveys. The findings of this research are in some ways consistent with wording and questionnaire design issues that affect English instruments. In other ways, the findings are important because they confirm and document potential sources of error that have been suspected to affect target language questionnaires, but for which no empirical data were available. The findings reveal key linguistic and questionnaire design issues that are relevant to the development and assessment of target language questionnaires.

The development of English language questionnaires at the Census Bureau typically involves lab or field pre-testing methodologies. Unlike source language instruments, however, questionnaire translations are rarely pre-tested prior to data collection. Financial constraints, lack of time, and lack of qualified bilingual personnel are among the most common reasons why questionnaire translations are not routinely pre-tested. Perhaps the greatest challenge to managing bilingual survey instruments is the absence of bilingual survey specialists who can review questionnaire translations from a survey methodology perspective. For this reason, the issue of functional equivalence has remained at large. What is functional equivalence and why does it matter? Questions in multiple languages are said to be functionally equivalent if they are measuring the same construct, and in doing so take into account fundamental differences between language and cultural groups (Smith 2002). Some of the reasons why questionnaire translations may not be functionally equivalent to the source language include use of terms which may not be understood as intended or may be misinterpreted, as well as words with bias due to pre-existing meaning in the respondent's cultural frame of reference. Because the goal of multilingual questionnaires is to collect valid and reliable data in more than one language, it becomes imperative to have questionnaire translations that are functionally equivalent to the original (or source) language.

THEORETICAL FRAMEWORK

Literature dealing with cognitive interviews and questionnaire design is vast; however, research dealing with these issues in bilingual settings appears to be limited at best. Authors writing about this topic are only beginning to explore the complex relationship between data collection and bilingualism. Much work is needed to explore data collection methodologies using bilingual questionnaires, bilingual enumerators, and bilingual respondents. There is also a need for empirical knowledge about how use of interpreters or use of monolingual questionnaires in

bilingual settings affect data quality. The theoretical models discussed below influenced this research in some fashion or another. Although it does not seem entirely appropriate to discuss the findings within the context of each of these models, it seems appropriate to cite them since they provide examples of research conducted to assess questionnaire design, the accuracy of responses, and the psychology of survey response in a monolingual environment.

Four important assumptions from monolingual research have influenced the character of this research. First, response error is one of the most common sources of survey error (Groves 1991). In the field of survey methodology, there are theories about various aspects of questionnaire design such as question wording and response categories that may contribute to response error. Experts in this field have identified the respondent as a potential source of response error, for example if there are cognitive discrepancies between how the respondent interprets a question and the actual intent of the question (Tourangeau, Rips & Rasinski 2000). The research presented herein is mainly concerned with identifying existing linguistic or questionnaire design elements that may contribute to response error in the target language.

The second assumption is based on language processing skills that assume respondents must have both knowledge about words and knowledge about the world in order to understand a question (Norman & Rumelhart 1975). In a bilingual setting, respondents may fall victim to one or more types of linguistic interference (e.g., cultural, semantic, lexical, or phonological interference). Specifically, respondents whose native language is not the same as the source language may encounter difficulty accessing and conceptualizing information of the source culture they may have not yet encoded, and may have difficulty responding to questions that ask about concepts or experiences that may be foreign to them. To complicate matters, the target

language may not have equivalent terms to account for some of these experiences or concepts (Mackey 1970).

The third assumption is respondent's misunderstanding of the question may also contribute to response error. Understanding the formal structure (grammatical representation of the question) and the semantic factors that affect question meaning is very important to comprehend not only how respondents understand survey questions, but also to understand response effects (Groves 1991; Sudman, Bradburn & Schwarz 1996; Tourangeau, Rips & Rasinski 2000). In a bilingual or multilingual setting, it is also likely that interpretations will vary depending on the respondent's native language, cultural frame of reference, and degree of acculturation or assimilation into the dominant society.

The fourth assumption is cognitive interviews may be used to test target language questionnaires as measurement instruments. A variety of cognitively inspired procedures have been used to discover, assess, and repair major types of interpretive difficulties surrounding monolingual survey questions. Cognitive interviewing has been successfully used as a tool for questionnaire development, including discovering questions that are flawed, improving questions, as well as content and construct validation (Willis, DeMaio & Harris-Kojetin 1999). A common technique used during cognitive interviews is to use verbal report methods, such as think aloud and verbal probing. A common comprehension technique is to ask respondents what specific terms mean to them, or to ask respondents to paraphrase what a specific question is asking (Crutcher 1994; Payne 1994; Sudman, Bradburn, & Schwarz 1996). Verbal report methods were used in the research presented herein with one major difference – interviews were done in the target language to assess whether source language concepts were interpreted as desired.

Results suggest the need to pretest questionnaire translations in order to ensure functional equivalence of questionnaire translations. Results from these cognitive interviews identified a series of conceptual and interpretive problems with key terms and questions, and helped document salient issues that may be attributed either to linguistic or questionnaire design issues. The findings are not reflective of inadequate translations, or poor translation techniques, but rather point to issues that may become apparent only through pre-testing.

METHODOLOGY

Three bilingual researchers from the Census Bureau, the National Center for Health Statistics, and a private contractor completed a total of 35 face-to-face interviews between January and February 2002 in California, Illinois, Maryland, and Texas. The researchers used Spanish questions as they appear in the American Community Survey (ACS) computer-assisted personal interview (CAPI) instrument. The ACS provides demographic and socio-economic data as well as housing profiles.

The ACS has three methods of data collection. First, households are asked to complete a paper-and-pencil (PAPI) instrument using mail-out/mail-back methodology. Computer-assisted telephone interviewing (CATI) methodology is used for households that do not return their PAPI questionnaire. A final attempt is made to collect data for missing households using computer-assisted personal interviewing (CAPI) methodology. Like other demographic surveys, the ACS CAPI instrument was first developed in English (source document), and then translated by private contractors.

Researchers used the CAPI version of the Spanish questionnaire translation to conduct face-to-face interviews exclusively in Spanish. The cognitive interview protocol included probes about the meaning of questions or specific terms. The interviews were conducted in community centers and lasted between 30 to 50 minutes. Interviews were audio taped, and respondents received a \$30 incentive for their participation.

All respondents were over the age of 16. Most were monolingual Spanish speakers with no knowledge of English; a few had limited English proficiency. The distribution of Hispanic heritage is the following: 20 were from Mexico, 6 from Guatemala, 3 from Ecuador, 3 from El Salvador, 2 from Colombia, and 1 from Puerto Rico. A total of 19 women and 16 men participated. Respondents were schooled both in the USA (42%) and abroad (58%). Seventeen percent had 5 years or less of formal schooling, 25% had completed grades 6-8, 25% had completed grades 9-12 but did not graduate from high school, 17% were high school graduates, and 17% had completed some college (no degree).

GENERAL CONTRIBUTIONS

Most questions were found to be functionally equivalent to the source document. That is, the Spanish speaker's interpretation of the question or concept reflected the meaning of the English question about three-fourths of the time. For example, if the English question asked "What is your name?" and the person provided a name when he heard the Spanish question, the intent of the target question was considered to be functionally equivalent to the source question. If the English question asked "Are there any boarders who stay here?" and the person interpreted the translation for "boarders" as students, then the question was not considered to be functionally equivalent to the source language, since the source language does not ask about students.

Question-specific findings and recommendation are provided in Attachment I. The findings discussed below are discussed in the context of general patterns that may affect the functional equivalence of questionnaire translations. The results have been classified into four linguistic and three design categories. One survey question is used to exemplify in detail the specific process under discussion.

Linguistic Issue #1: Pre-Existing Bias

Cognitive interviews revealed pre-existing meaning for certain terms in the respondents' cultural frame of reference led respondents to misinterpret the intent of the question. The question "*Did you receive any Social Security or Railroad Retirement benefits during the past 12 months?*" elicits a quick response. Most respondents do not show signs of hesitancy, either verbal or non-verbal, that would suggest they have misunderstood the question. The question about Social Security uses the term *Seguro Social*, which is a proper noun used in many Spanish-speaking countries, albeit not in the same context it is used in the United States. Questions that use terms with pre-existing meaning in different cultural contexts, as in the case of Social Security, will not necessarily show high allocation rates. Thus, these types of questions require special attention from bilingual personnel who are familiar with linguistic and cultural nuances of the target population.

Probing for meaning revealed only a few of the respondents actually interpreted "Social Security" as intended. The results showed 83% of the 35 respondents either reported not knowing what the term *Seguro Social* is, or interpreted the term in a manner that was not consistent with the intent of the question. Most respondents interpreted the term *Seguro Social* as public assistance in the general sense, or as health-related benefits. This is understandable, since many Spanish-speaking countries commonly use this term to refer to their national welfare

or public health care systems. For example, some respondents reported being familiar with the Mexican “*Instituto Mexicano del Seguro Social*,” also known as “*el Seguro*” or “*IMSS*.” This *Seguro* is one of two major national health care systems that operate a chain of hospitals and health-related services for workers whose employer pays a fee to the *IMSS*. The *Seguro* offers health services (medical, dental, rehab and social services) at no cost to workers and their dependents. Retired workers who were covered by the *Seguro* often keep their coverage; and in some cases may receive a pension.

Several techniques may be explored to overcome the biases associated with pre-existing cultural frames of reference. In this particular case, one option might be to keep the English proper noun “Social Security,” which may help respondents realize the question asks about benefits in the United States. Another option may be to add a short explanation about what Social Security payments include. This might steer respondents away from interpreting the concept in general welfare or healthcare terms. A third alternative may be a combination of both suggestions. A comparative approach should help determine which wording is best understood as intended.

Linguistic Issue #2: No Equivalent Marker

Perhaps the greatest challenge to functionally equivalent questionnaires is lack of equivalent markers for words or concepts that do not exist in the target language or culture. Thus, the target language will not have a term to account for the concept being measured. In the United States, the foster system trains and pays adults to care for children on a temporary basis. Collecting information about foster children in a bilingual context is quite challenging for linguistic as well as cultural and semantic reasons.

From a linguistic perspective, the target language (i.e., Spanish) does not have a term to account for the foster concept. From a cultural perspective, it is common for Hispanics to raise children who are not their own. Unlike in the foster system, the children are typically relatives or close friends of the family, and no formal arrangements are usually made. This concept also calls for special semantic considerations when determining how to explain the concept so that it is accurately and consistently understood. If there is a monetary transaction involved, monolingual Hispanics are likely to interpret the arrangement as babysitting. If formal processes such as those involved in the foster system are mentioned, monolingual Hispanics tend to interpret the formal process as a legal adoption. Because neither the term nor the concept are translatable, finding a way to accurately convey this term to respondents in the field is difficult (Carrasco and Músquiz 2003).

The Spanish ACS questionnaire uses *hijos de crianza* to refer to foster children. Conveying the concept of foster child using these words, however, is vague. The word *crianza* stems from the verb *criar* (to raise). This is the most likely explanation for why 75% of the 35 respondents interpreted the term as “any” child the respondent is raising. Those who interpreted the term as intended were familiar with the foster system and used the English term “foster” when referring to the program. For example, some respondents used “el niño foster,” a phenomenon which linguists refer to as borrowing (Mackey 1970). The presence of borrowing in this case suggests trying to find a name in Spanish for a concept such as the foster program might create more methodological harm than remedy. Extensive research and testing is recommended for terms that do not have equivalent markers to determine what wording conveys the intended concept or meaning in a manner that is consistent with the source language, and if leaving the English marker is indeed the best alternative, especially for proper nouns that refer to US institutions.

Linguistic Issue #3: Frequently Occurring Lexicon

A term or concept may be translated in any number of ways. Some of those ways may include terms that are used with greater frequency than others. For example, in the discourse of some areas “car” may occur more frequently than “automobile.” In terms of functional equivalence, the challenge to questionnaire translations is finding among all acceptable translations, the specific wording which most consistently elicits the information desired. The question “*At any time during the past 12 months, did anyone in this household receive food stamps?*” illustrates a frequent lexicon used for “food stamps” may pose measurement challenges. In the survey context, *cupones para la compra de alimentos* is widely misinterpreted as a more general concept encompassing public assistance or welfare.

After probing for specific names of programs, 42% of the 35 respondents offered the following examples: WIC, cash assistance, food stamps, TANF, and AFDC. Respondents also mentioned assistance from charities, coupons for food that come in the mail (e.g., Val Pak), coupons clipped from the Sunday newspaper, gift certificates or vouchers. These interpretations may result from using the generic term *cupones para la compra de alimentos*, which literally means “coupons to buy food,” and which could feasibly include the different types of coupons mentioned by respondents. As in the case of Social Security, those respondents who were familiar with the concept borrowed the English term when referring to the program. Trying to find a name for these institutions in Spanish may cause greater methodological harm than remedy, since vague translations may be interpreted out of context and therefore threaten construct validity.

Linguistic Issue #4: Literal Translations

Using the same words in two or more languages will not always convey the same idea. For example, if a language has a word for “room” and a word for “mate,” does putting those two words together result in a conceptual equivalent of “roommate”? This technique is reflected in *compañero de cuarto*, which was intended to convey the concept of “roommate.”

Results showed only 33% of the 35 respondents interpreted *compañero de cuarto* as a functional equivalent of “roommate.” Most thought this concept referred to people who share the same bed; people who sleep together; or sexual partners. The question about roommates, as intended by the Census Bureau, is meant to identify persons who are unrelated to the householder and who share living quarters primarily to share expenses. The word “roommate” poses both conceptual and linguistic challenges for the researchers. Carrasco and Músquiz’s (2003) research findings suggest this phenomenon is not very prevalent in the Hispanic culture and in many Latin American countries, where the roommate situation may be limited to college students or migrant workers. There also appears to be some degree of social desirability associated with this term; mainly the disapproval of unmarried women living with unrelated adults. Extended family dynamics also affect clear differentiation between household members and relationship to the head of household. Census Bureau interviewers have reported respondents use Pidgin words for this concept, such as “el ruma” or “rumi.”

Design Issue #1: Mapping Responses

The question “*What is the highest degree or level of school you have completed?*” elicits a quick response from respondents. Respondents know what their highest level of education or highest degree attained is. The problem is only about one third of initial responses (n=35) correctly

mapped onto the pre-coded response categories. Most initial responses appear to be in the form of some ordinal number, such as “fourth.” Detailed probing allowed researchers to accurately map most of the initially misleading responses onto the pre-coded answer categories.

In order to find a response that would more accurately reflect the respondent’s highest level of education, it was necessary to ask for a description of the education system in the country where this education was completed, and then compare the foreign school years to the U.S. system to determine what the corresponding level might be. Putting the initial answer in a comparative context also verified the level was accurately recorded. For example, a respondent whose initial answer was “fourth,” had actually completed what is considered tenth grade in the United States:

Resp: Cuarto.

Resp: Fourth.

Int: ¿Cuarto de qué? ¿De primaria?

Int: Fourth of what? Elementary?

Resp: No, de secundaria.

Resp: No, “secundaria.”¹

Int: A ver, dígame como se estructura el sistema de educaci\n en [Ecuador], empezando con la priamaria. ¿La primaria abarca de quJ año a quJ año?

Int: Tell me what the structure of the education system in [Ecuador] is like, beginning with elementary school. Elementary school goes from what grade to what grade?

Resp: De primero a sexto.

Resp: From first through sixth.

¹ “Secundaria” is commonly used to mean a level greater than elementary, but exact grades or levels vary from country to country.

Int: ¿Y después qué sigue?

Int: And what comes after that?

Resp: La secundaria.

Resp: “Secundaria.”

Int: ¿Y eso abarca de qué año a qué año?

Int: And that’s from what grade to what grade?

Resp: De primero a sexto.

Resp: From first through sixth.

Int: ¿Y despues qué sigue?

Int: And what comes after that?

Resp: Un año de pre-universitario para los que quieren ir a la universidad.

Resp: One pre-university year for those that want to go to the university.

By asking these probes, it was possible to determine that in fact, fourth grade of *secundaria* in Ecuador corresponded to the sophomore year in high school, which is the tenth year of school in the United States. This was also apparent because after two more years, the respondent could have chosen to go onto a university-preparation course for one year. Although the initial response was [fourth], probing showed it was not the fourth grade that corresponds to elementary school in the United States, since fourth graders do not have the option of going to college after the sixth year of schooling. The few responses that were not mapped onto the pre-coded response categories were mostly for vocational education completed in a country outside the United States. For example, one of the respondents had studied sewing for three years after elementary school. She had a certificate in *corte y confección* [sewing], and worked as a

seamstress. It is likely that in terms of formal schooling, she finished the sixth grade and perhaps that would be the most accurate response in her case.

Another example related to specific levels of education may be illustrated by the use of homonyms. The same word may be used in different countries, but not necessarily to refer to the same grades or levels. Table 1 shows respondents’ understanding of the education system in their home countries and the USA (for those who were schooled in the USA). Although the labels and actual levels may not be accurate, what is significant about this table is a cautionary note for education or literacy surveys, since levels of education and grade numbering systems in the USA and other countries may not necessarily match, and respondents are unlikely to interpret education levels consistently even among those educated in the USA. Perhaps the greatest lesson in terms of this question is relying on a vague ordinal response is not always appropriate, at least in the case of questions that ask about levels of education.

Table 1: Respondents’ understanding of education systems between elementary and high school levels in country of origin

Country	Elementary	Middle School	High School
Ecuador	Primaria 1 st – 6 th	Secundaria 1 st – 6 th	
El Salvador	Primaria 1 st – 6 th	Plan B<sico 1 st – 3 rd	Bachillerato 1 st – 3 rd
Mexico	Primaria 1 st – 6 th	Secundaria 1 st – 3 rd	Preparatoria 1 st – 3 rd
USA	Elementary 1 st – 6 th	Middle School 7 th – 8 th OR Junior High School 7 th – 9 th	High School 9 th – 12 th OR 10 th – 12 th

The education question also served to illustrate other contrastive linguistic phenomena that can result in measurement error. For example, *colegio* in Spanish is a synonym for “school,” but

because it looks and sounds like the English word “college,” it is a false cognate (i.e., it may be easily but erroneously confused with college). Avoiding these types of words should help increase the accuracy of responses.

Design Issue #2: Question-Order Effects

A challenging issue may rise in target-language questionnaires as a result of the order in which questions are asked. Question order effects may or may not reveal the same patterns for both the target and source language. For example, both the English and Spanish questionnaires ask whether the respondent received money from different types of income sources. The question “*Last week, did you do any work for either pay or profit?*” uses the word *lucro* in Spanish to convey the concept of “profit.” Although this is an acceptable and perhaps the most accurate way of translating “profit,” Spanish speakers tend to ascribe a negative connotation to the term. Rather than interpreting the term as any other work that resulted in earnings, 42% of the 35 respondents thought the question was asking about money that was earned by cheating, taking advantage of someone, gambling, or committing some type of fraud or illegal act.

Design Issue #3: Automation

Automated instruments display text that is hard coded (i.e., text that never changes) and text that is soft coded (i.e., words that change depending on the context of a question). Words that change are called “fills,” and grammar rules define the logic or rules for wording changes (e.g., adding or omitting helping verbs, tense agreements, possessive pronoun agreements, etc.). Applying English logic to Spanish fills results in text that is difficult to read and understand. For example, the Spanish language requires defining fills based on different logic from that of English fills. To illustrate this point, the common English fill <your/his/her> is based on 1) whether the

respondent is the subject or proxy, and 2) the subject's sex. In Spanish, the same fill would need to be based on the noun's number. This would require identifying a different set of variables to determine what the screen should display. Otherwise, the English logic would display Spanish fills that are nonsensical, or fills in English. The latter situation causes English words to appear embedded within Spanish text, making the Spanish instrument difficult to read. In cases where multiple fills exist, inadequately defined fills result in long strings of English words embedded within Spanish text, making it difficult to read and understand questions. This contributes to interviewers having to constantly toggle between the Spanish and English instruments, which in turn discourages interviewers from using Spanish instruments and encourages them to translate on the fly.

Another linguistic aspect that becomes relevant, in terms of English-Spanish bilingual instruments, is one of these two languages may require fills where the other one does not. For example, the fill for helping verbs (do, does, did) is prevalent in the English instrument. These helping verbs, however, are not needed in the Spanish instrument. The Spanish instrument, on the other hand, will require fills to display gender agreement, whereas the English language does not need this type of fill. Although these problems have been reported, identified and documented, there appears to be no clear sense of who might be ultimately responsible for language issues in an automated questionnaire. Should the translator become familiar with specifying logic? Should the translator work with a programmer or should the programmer be bilingual? Answers to these questions will need to be addressed as use of multilingual questionnaires and automated instruments increase.

DISCUSSION

Results from this study reveal functional equivalence is key to accurate data collection in a bilingual or multilingual setting. As measurement instruments, questionnaire translations require pre-testing to ensure they yield valid and reliable data. Qualitative pre-testing can show which questions present respondents with trouble interpreting the intent of the question, correctly understanding key survey concepts, misinterpreting key terms, and challenges matching the respondent's answer onto pre-coded response categories. Results from qualitative pre-testing may be effectively used to find wording in the target language that is functionally equivalent to the source language. The systematic approach used throughout this research shows an effective way to improve the quality of data obtained in foreign languages as well as data obtained from respondents with limited English proficiency is to apply known pre-testing methodologies, such as cognitive interviews, to questionnaire translations *before* they are fielded.

In terms of linguistic challenges, it is likely the types of challenges discussed herein might not be evident to the translator, and may become evident only after testing. This may be due to the fact a question itself may be an appropriate translation, yet may not be acceptable as a construct measure. For this reason, questionnaire translations must be assessed both as translations and measurement instruments. It may not always be possible to have a translator who is trained in survey methods, or a survey methodologist who is bilingual, but the two types of assessments are needed. Regardless of the techniques that are used to translate questionnaires, pre-testing is essential to identifying and remedying linguistic and design challenges that could result in response error.

In terms of questionnaire design, the results discussed herein suggest the need to carefully assess questionnaire translations from a questionnaire design perspective. This is necessary to ensure both that translations are consistent with basic principles of questionnaire design, and consistent with research objectives. After all, the most important test a questionnaire translation needs to pass is “Does this question measure the same thing in the target language?” And it may be difficult to provide an accurate response to this question without systematically and empirically assessing the functional equivalence of questionnaire translations.

A final note is offered on the advantage of using cognitive interviews to address the intra-language variation of Spanish. After all, the notion of “different Spanishes” frequently clouds understanding of Spanish language issues. Keeping this in mind, a main objective of this type of testing is to find the wording that is less frequently misinterpreted, since misinterpretation would be expected to lead to greater response error. Though different terms may be preferred by different Hispanic subgroups, terms that consistently convey the intended construct should be employed. Selecting terms for use in measurement instruments must therefore be based on systematic and empirical testing, and such objective selection should take precedence over subjective preferences of intra-language variation.

This paper has illustrated some of the linguistic and design challenges that cognitive interviews may help identify and remedy. Without systematic testing, there is no empirical basis for evaluating the efficacy of a questionnaire translation as a measurement instrument. Thus, survey specialists should routinely test questionnaire translations regardless of the process, techniques, and quality assurance steps that translators may have used to produce the final target language document. No other recommendations are offered. Instead, the author invites the reader, and in

particular the bilingual reader, to explore and assess the efficacy of current data collection methodologies in bilingual or multilingual contexts.

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ATTACHMENT I

**ATTACHMENT I:
Question by Question Results of Cognitive Interviews Using the
ACS Spanish Language Instrument**

MOREPER

Is there anyone else living or staying here?
¿Vive o se está quedando aquí alguien más?

Some respondents gave a correct answer to this question. Some probed for clarification before offering an answer. The respondents who probed were not sure whom the phrase *alguien más* referred to, specifically they wanted to know if this question was asking about people other than family: “*¿A parte de la familia?*” It appears that most respondents interpret *alguien más* in a similar manner. That is, most respondents interpret *alguien más* as people who are not related to them.

Almost one half of respondents gave an incorrect answer to this question. The respondents who answered incorrectly changed their answer after question R2 was asked. Specifically, these respondents realized that MOREPER asked for anyone who lived in the household, including children, spouses, and other family members or relatives. These respondents had inferred that *alguien más* asked about people other than family members, so they initially responded *no*. Hence, Question R2 helped respondents realize they should have included children, spouses, and other relatives living in the household in MOREPER.

This is an example of a question that is grammatically correct. It has also been translated correctly – that is, this question is asking for the same information the English question does. However, the term *alguien más* does not elicit the information intended. As described above, most respondents did not think about including other household members as they constructed their response to this question. To avoid under-reporting, it may be useful to acknowledge the respondent as a household member, and clarify this question asks who else lives there.

Quantitative summary:

Correct answer	25%
Incorrect answer (respondent changed answer after R2)	42%
Probed for clarification before offering an answer	33%

Suggested change:

A parte de usted, ¿quién más está viviendo o se está quedando aquí?

R2

The following questions are to make sure this list is as complete as possible. Does anyone else live or stay here, such as roomers, foster children, boarders, or live-in employees?

Las siguientes preguntas son para asegurar que esta lista este lo mas completa posible... ¿Vive o se esta quedando alguien más aquí, tal como, compañeros de cuarto, hijos de crianza, pupilos, o empleados que viven en el hogar?

As described in MOREPER above, R2 served to clarify the intent of MOREPER. By not mentioning spouses or children, this question helped respondents realize that they should have included family members in their response to MOREPER.

Key terms in this question, however, were not understood as intended. Only a few respondents interpreted *compañeros de cuarto* as a conceptual equivalent to roommates. Most thought this concept referred to people who share a bed; people who they sleep with; or sexual partners.

Most respondents did not interpret the term *hijos de crianza* as intended. The English term refers to foster children, but a majority of respondents thought this term referred to biological or adopted children. This may be due to two factors. First, the term *crianza* derives from *criar*, which means “to raise,” as in “to raise a child.” Although this is partly related to the concept of foster child, respondents specifically applied this term to children they cared for regardless of whether the children were biological, formally adopted, informally absorbed into the household, etc. Second, the concept of foster care involves legal arrangements through which adults are paid to raise children in their homes. There is no word or equivalent marker in Spanish for the “foster” concept. Most respondents are not familiar with this concept of having the government pay someone to raise children, and babysitting is the closest concept to which they were able to relate. The few respondents who were familiar with the term, borrowed the English marker “foster,” so keeping the English word instead of trying to find a Spanish marker is recommended.

An overwhelming majority did not know the meaning of *pupilos*. The dictionary translation of *pupilo* includes student and apprentice. Although only a couple of respondents knew the dictionary meaning, the word *pupilo* raises another issue. The English version of this question does not mention students or apprentices, so although this question is grammatically correct, the Spanish question is asking something different from what the English question is asking.

Quantitative summary:

Compañeros de cuarto

Correct meaning	33%	
Don't know	8%	
Incorrect meaning	58%	Modes: friends; people you sleep with

Hijos de crianza

Correct meaning	25%	
Don't know	0%	
Incorrect meaning	75%	Modes: biological children; adopted children

Pupilos

Correct meaning	8%
Don't know	75%
Incorrect meaning	17%

Suggested change:

Las siguientes preguntas son para asegurar que esta lista esté lo mas completa posible... ¿vive o se queda aquí alguien más, por ejemplo personas que rentan cuartos, hijos foster, o empleados que viven aquí?

R3

Is there anyone staying here even for a short time, such as a friend or relative?

¿Alguien más está viviendo aquí aunque sea por corto plazo, como un amigo o pariente?

When probed about the meaning of *corto plazo*, half of the respondents reported some vague quantifier such as [a little while]. When asked to quantify their answer by giving an example of what the term meant to them, most defined *corto plazo* as more than two months but less than one year, some defined it as one to two months, and a few defined it as less than one month. It is clear that respondents are using very different parameters to determine who is living or staying in their household for a short time.

Quantitative summary:

Corto plazo

Initial quantifier	50%	a little time, some time, temporary stay
Probe	42%	more than 2 months, but less than 1 year
	33%	1 to 2 months
	25%	1 week
Don't know	0%	

Suggested change: clearly define and incorporate what “short term” means in the context of this survey. This incorporation may need to be specified in English too.

¿Hay alguien más que se está quedando aquí aunque sea por corto plazo, como un amigo o pariente?

R5

Do any of the people you named have another home or fixed residence?

¿Tiene(n) algunas de las personas que mencionan otra casa o residencia fija?

Most respondents defined *residencia permanente* as having another house where someone lives. Some defined this term as owning another house, regardless of where the person actually lives, and few defined it as what they consider to be their permanent address.

It is common for immigrants to interpret this term as the house they lived in or currently own in the parent country – especially if they plan on returning.

This sentence has subject-verb agreement errors. Although subject-number use is correct, agreement may be simplified to make this sentence easier to read.

Quantitative summary:

Residencia permanente

Another house where they live	42%
Home owner of another house	33%
Permanent address	17%

Suggested change:

¿Tiene alguna de las personas que mencion \ otra casa o residencia fija?

B6

Are you Spanish, Hispanic or Latino?

¿Es usted español(a), hispano(a) o latino(a)?

All respondents fit the official definition of Hispanic, but only a few of them self-identified as Hispanic. Most of them self-identified as Latino, but they appeared to be accommodating, that is, although this is not their preference, they know the Government expects them to select this answer category. About one third offered a nationality, such as Mexican, as their initial response. One fourth gave the same answer for the race question (B7_2CP). Although there are conceptual problems with this question – that is inconsistencies between the ways the Government defines these terms and how people self-identify, this question is grammatically correct. Gender-based fills should be used in order to avoid use of “o(a),” which can make text difficult to read.

Quantitative summary:

Latino	42%
Mexican	33%
Hispanic	25%

NOTE: 25% gave the same response to the question and about ethnicity (B6) and the question about race (B7_2CP)

Suggested change:

If respondent is the subject

If SEX eq <1> or if SEX eq <>

Display <*¿Es usted español, hispano o latino?*>

Else

Display <*¿Es usted española, hispana o latina?*>

Else

If this is a proxy interview

If SEX eq <1> or if SEX eq <>

Display <*¿Es [TEMPNAME] español, hispano o latino?*>

Else

Display <*¿Es [TEMPNAME] española, hispana o latina?*>

B7_2CP

Using this list, please choose one or more categories that best indicate _____'s race.

Usando esta lista, por favor escoja una o más categorías que indiquen la raza de _____.

Most respondents reported the answer categories included in the flash card did not apply to them. When asked if a different category should be added to include them, some recommended adding the word <Hispanic>, others recommended adding *mestizo*, and several made other recommendations (e.g., Latino, Mexican-American).

Those who considered selecting <Native-American> noted that although this term might be the closest they could identify with, they realize the term refers to people of "Indian" heritage born in the United States. Thus, they were disinclined to believe that the Census Bureau would categorize them as Native-Americans if they were *indígenas* (native Indians) from Mexico or other Latin countries.

Conceptually, this question poses a great challenge because people have different interpretations of what race is, and many of those interpretations do not match the racial classification system prescribed by OMB. Furthermore, this classification system prescribes that Hispanics may belong to any race, but many Hispanics do not make a distinction between race and Hispanic heritage.

This question is grammatically correct, but native Spanish speakers prefer to use this syntax when talking about someone else, so it is most appropriate for proxy interviews. First-person interviews may sound awkward because most native Spanish speakers would use the direct object pronoun *su* (your) rather than *de usted* (of you).

Quantitative summary:

White 42%

Thought none of the categories accurately described him or her: 58%

After probing, respondents thought the following categories should be added to the list:

Hispanic 25%

Mestizo 17%

Other: 16%

Ex: Latino, Native-American, Mexican-American

Recommended change:

If the respondent is the subject

Display <*Usando esta lista, por favor escoja una o más categorías que indiquen su raza*>

Else

If this is a proxy interview

Display <*Usando esta lista, por favor escoja una o más categorías que indiquen la raza de[TEMPNAME]*>

H7

How many rooms are in this house, not counting bathrooms, halls, porches, or utility rooms?
¿Cuántos cuartos hay en esta casa, sin contra baños, pasillos, entradas, terrazas cubiertas, o cuartos de limpieza?

The majority of respondents reported number of bedrooms. On the surface, this question itself elicits a numeric answer that almost all respondents give without hesitation. Only a few probed as to the types of rooms to be included in the count. However, after hearing question H8, many respondents changed their initial response to question H7. Question H8 asks how many of these rooms are bedrooms, which helps respondents realize that question H7 referred to different types of rooms, not just the bedrooms. Indeed, many of the respondents who changed their answer voluntarily clarified that by *cuarto* they meant *recámara*. Some insisted that *cuarto*, *dormitorio*, and *recámara* mean the same thing.

Some of the respondents thought this question needed to be reworded. Specifically, they thought it might be easier for respondents to think about and count which rooms to include, instead of which ones to exclude. For example, ask how many rooms there are including bedrooms, living rooms, kitchens, etc. One respondent suggested, “*¿Cuántos cuartos hay en esta casa contando la sala y la cocina?*” Respondents also felt that mentioning which rooms to include would make it easier for them to count in their mind.

Quantitative summary:

Correct meaning	33%
Probed before answering	17%
Thought <cuarto> was bedroom	50%

NOTE: % who thought this question needs to be reworded: 50%
% who thought asking H8 before H7 would clarify <room> concept: 17%

Recommended word and question order changes:

H8: *¿Cuántos dormitorios hay en esta casa, hogar, or apartamento?*

H8: *How many bedrooms are in this house?*

H7: *A parte de esos <3> dormitorios, ¿cuántos cuartos mas hay en esta casa?
Incluya salas, cocinas, etc.*

H7: *In addition to those <3> bedrooms, how many other rooms are there? Include living rooms, kitchens, dens, etc.*

H8

How many rooms are bedrooms?

¿Cuántos de estos cuartos son dormitorios?

This question served to clarify the intent of question H7. Many respondents interpreted the word *cuartos* in H7 to mean bedrooms, and question H8 helped them realize that *cuartos* was being used in a more general sense. Some respondents thought that asking question H8 before question H7 may help clarify the difference between bedrooms and rooms. In essence, the sequence would be as follows:

H8: *¿Cuántos dormitorios hay en esta casa, hogar, or apartamento?*

H8: ***How many bedrooms are in this house?***

H7: *A parte de esos <3> dormitorios, ¿cuántos cuartos mas hay en esta casa?*

Incluya salas, cocinas, etc.

H7: ***In addition to those <3> bedrooms, how many other rooms are there? Include living rooms, kitchens, dens, etc.***

H12

How many cars, vans, and trucks of one ton capacity or less are kept for use by members of this household?

¿Cuántos carros, vanes, o camiones de una tonelada o menos de capacidad mantienen en el hogar para uso de los miembros de este hogar?

The respondents were able to easily distinguish between cars, vans and busses. Some of them interpreted the word *camiones* as cargo trucks or public busses. Many respondents thought it was unnecessary to include the weight reference, since they could not image exactly how much one ton is or how much their vehicles weigh. One respondent said it was obvious that a vehicle weighs a lot: “*Se supone que el carro pesa bastante.*”

Quantitative summary:

NOTE: % who thought <camion> referred to public bus or 18-wheeler:	33%
% who thought weight reference was unnecessary:	50%

Recommended change:

¿Cuántos carros, vanes, o camiones tienen los miembros de este hogar?

H16

At any time during the last 12 months, did anyone in this household receive food stamps?
Durante los últimos 12 meses, ¿recibió alguien en este hogar Cupones para la compra de Alimentos?

Many respondents interpreted the term *cupones para la compra de alimentos* as *estampillas*, a common marker for food stamps. Many others interpreted the term as a more general concept encompassing public assistance or welfare. Only one of the respondents reported not knowing what the term referred to. After probing for specific names of programs to clarify what respondents meant by *estampillas*, public assistance, or welfare, respondents offered the following examples: WIC, cash assistance, food stamps, TANF, Lone Star and Link Card (the name for the AFDC program in Texas and Illinois respectively). Respondents also mentioned assistance from charities, coupons for food that come in the mail (e.g., Val Pak), coupons clipped from the Sunday newspaper, gift certificates or vouchers. These interpretations may result from using the generic term *cupones para la compra de alimentos*, which means “coupons for food,” and which could feasibly include the different types of coupons mentioned by respondents.

Generally speaking, *cupones para la compra de alimentos* is one of several, common translations for “food stamps.” The relevance of this translation, however, has been questioned in the modern context. Many state agencies have stopped distributing these benefits in paper form (coupons, etc.) Instead, many agencies have begun using debit cards that can be swiped at cash registers. This new system has rendered use of the word *cupones* outdated because people are using debit cards. Furthermore, many people refer to the debit card by the name on the card, which is the name of the state program. Lone Star and Link Card are examples of answers offered by respondents in Texas and California.

Quantitative summary:

Cupones para la compra de alimentos

Public assistance or welfare	42%
Estampillas	50%
Don't know	8%

Probe for names of specific programs

WIC	42%
Cash assistance	17%
Food Stamps	17%
TANF	8%
Lone Star	8%

Other things: assistance from charities, coupons that come in the mail, coupons clipped from the newspaper, gift certificates or vouchers

Recommended change: include fill with specific program names in this question.

H18

Do you or someone in this household own this house with a mortgage or loan, own it free and clear, rent it, or occupy it without having to pay rent?

¿Es usted o alguien en este hogar dueño(a) de este(a) casa con una hipoteca o préstamo, dueño(a) de este(a) libre y sin deuda, o(a) alquila o lo(a) ocupa sin pagar alquiler?

Although all respondents knew the intent of this question, many thought this question needed changes. Specifically, some recommended breaking the question into smaller parts. For example, asking whether someone in the household owns or rents the house. If the house is not rented, then ask whether the person has a mortgage, a second mortgage, or if the house is paid off. One respondent immediately pointed out that there were several questions in this statement: “*ahí hay varias preguntas.*”

Quantitative summary:

Recommended changing question:	75%
Break up into parts	42%
Re-wording	33%

Recommended change

If there is more than 1 HH member:

¿Ustedes rentan esta casa, son dueños, o viven aquí sin pagar renta?

- 1) Rentan
- 2) Son dueños
- 3) No pagan renta

If @ eq <1> or if @ eq <3>

Go to next question

Else

¿Ya terminaron de pagar la casa, tienen préstamo o hipoteca?

- 4) Casa pagada
- 5) Préstamo
- 6) Hipoteca

Else

If there is 1 HH member:

¿Usted renta esta casa, es [fill <dueño>/<dueña>], o vive aquí sin pagar renta?

- 1) Renta
- 2) Es [fill <dueño/dueña>]
- 3) No paga renta

If @ eq <1> or if @ eq <3>

Go to next question

Else

¿Ya terminó de pagar la casa, tiene préstamo o hipoteca?

- 4) Casa pagada
- 5) Préstamo
- 6) Hipoteca

Dueño/dueña fill:
If SEX eq <1> or SEX eq <>
 Display <dueño>
Else Display <dueña>

P8A

Are you a citizen of the United States?

¿Es usted ciudadano de los Estados Unidos?

Respondents are likely to have used direct retrieval when offering this response. Such respondent behavior typically discourages further probing because responses are delivered in a quick, natural, and convincing manner. Nonetheless, probing revealed an interesting pattern. Although the response itself is accurate, respondents did not interpret the concept of citizenship as being born in the USA, being born abroad of American parents, or becoming a naturalized citizen. They defined the term *ciudadano* in different ways, such as being a “resident” of the city you live in, having “papers,” and a few made a reference to country loyalty.

The respondents who interpreted the word “citizen” as “resident of the city you live in,” indeed considered themselves residents of the city where they lived; however, they did not consider themselves “citizens” of the United States. A typical response was “Soy residente de Anaheim porque vivo en Anaheim.” Although respondents’ understanding of citizenship varies greatly and although it does not necessarily agree with the construct the Census Bureau is trying to measure, it is likely that respondents are offering accurate responses to this particular question.

Quantitative summary:

Citizen

Resident of the city you live in	42%
Born here (in the USA)	25%
Has papers	25%
Is loyal to this country (USA)	8%

Recommended change:

If respondent eq subject

If SEX eq <1> or SEX eq <>

Display <*¿Es usted ciudadano de los Estados Unidos?*>

Else

If SEX eq <2>

Display <*¿Es usted ciudadana de los Estados Unidos?*>

Else

If this is a PROXY interview

If SEX eq <1> or SEX eq <>

Display <*¿Es [TEMPNAME] ciudadano de los Estados Unidos?*>

Else

If SEX eq <2>

Display <*¿Es [TEMPNAME] ciudadana de los Estados Unidos?*>

P9

When did _____ come to live in the United States?

¿Cuándo vino a vivir _____ a los Estados Unidos?

Most respondents began their response with a common Spanish structure: *hace* ____ *años*. This structure may be translated as “ ____ years ago.” The interviewer must then calculate the year of arrival and confirm with the respondent. If the intent of this question is to elicit a specific year from the respondent, then asking “what year” may reduce error in calculating the desired response.

This question appears to have one salient feature when talking to people who have been in and out of the country throughout the years. Some are unsure whether to report the first time they came, the most recent year of entry, or the year in which they came and stayed for the longest period of time. This may be of interest to researchers studying migration patterns.

Quantitative summary:

Recommend breaking up 17%

Thought *naturalización* is “natural, i.e., by birth” 8%

Recommended change:

¿En qué año vino[<usted>/<NAME>] a vivir a los Estados Unidos?>

Fill:

If respondent eq subject

Display <usted>

Else

If this is a proxy interview

Display <[NAME]>

P8B

Were you born abroad of an American parent or parents or did you become a citizen by naturalization?

¿Es usted hijo de padres Americanos pero nacido en el extranjero, o se hizo usted ciudadano por naturalización?

Most respondents recommended breaking up this question into two: one asking if the person was born abroad of American parents, and another asking if the person became a citizen through naturalization.

One respondent explained that this question asked three things. *Esta pregunta pide tres cosas distintas: si uno es de padres americanos, si es nacido en el extranjero, y si se hizo ciudadano por naturalización.*

Since the universe for this question is conceivably people who were not born in the United States, this question could be simplified by asking if the respondent's parents are American or if the respondent became a citizen through naturalization.

Recommended change:

¿Es [usted]/<[NAME]>] de padres Estadounidenses o se hizo ciudadano de Estados Unidos por naturalización?

Fill:

If respondent eq subject

Display <usted>

Else

If this is a proxy interview

Display <[NAME]>

P12

What is your ancestry or ethnic origin?

¿De qué descendencia es usted?

This question elicits a quick response from respondents. After probing, respondents reported interpreting the word *descendencia* in different ways: many said they reported the country where they are from, others reported the country where their parents are from, some said they thought of their ancestors' race (white, Spanish, Indian), and some thought the concept referred to linguistic heritage (Spanish).

Quantitative summary:

Descendencia

Country you are from	33%
Country where parents are from	33%
Race of ancestors	17%
Linguistic heritage	17%

P11

What is the highest degree or level of school you have completed?

¿Cuál es el título o nivel de escuela más alto que usted ha terminado?

This question elicits a quick response from respondents. That is, respondents know what is their highest level of education or highest degree attained. The problem is that only a few of the initial responses actually mapped onto the response categories. Most respondents gave some ordinal number, such as *el cuarto*, or made reference to the term used in the country where they studied: “*Yo terminé la secundaria en México.*” Of those whose initial response did not map onto the response categories, it was possible to map almost all of their responses onto the answer categories after several probes.

In order to map the responses accurately, it was necessary to ask for a description of the education system in the country where this education was completed, and then compare the foreign school years to the American system to determine what the corresponding level might be. Putting the initial answer in a comparative context also allowed verification that the level was accurately recorded.

Quantitative summary:

Answer mapped onto scale	33%
Answer did not map onto scale	67%
Probing mapped answer onto scale	88%
Probing did not map answer	12%

Examples:

A respondent whose initial answer was “fourth,” had actually completed what is considered 10th grade in the United States:

Resp: Cuarto.

Resp: Fourth.

Int: ¿Cuarto de qué? ¿De primaria?

Int: Fourth of what? Elementary?

Resp: No, de secundaria.

Resp: No, “secundaria.”²

Int: A ver, dígame como se estructura el sistema de educación en [Ecuador], empezando con la primaria. ¿La primaria abarca de qué año a qué año?

Int: Tell me what the structure of the education system in [Ecuador] is like, beginning with elementary school. Elementary school goes from what grade to what grade?

Resp: De primero a sexto.

Resp: From first through sixth.

² “Secundaria” is commonly used to mean a level greater than elementary, but exact grades or levels vary from country to country.

Int: ¿Y después qué sigue?

Int: And what comes after that?

Resp: La secundaria.

Resp: “Secundaria.”

Int: ¿Y eso abarca de qué año a qué año?

Int: And that’s from what grade to what grade?

Resp: De primero a sexto.

Resp: From first through sixth.

Int: ¿Y después qué sigue?

Int: And what comes after that?

Resp: Un año de pre-universitario para los que quieren ir a la universidad.

Resp: One pre-university year for those that want to go to the university.

By asking these probes, it was possible to determine that in fact, 4th grade of *secundaria* in Ecuador corresponded to the sophomore year in high school, which is the 10th year of school in the United States. This was also apparent because after two more years, the respondent could have chosen to go onto a university-preparation course for one year. Although the year was “fourth,” it was evident that it was not the 4th grade that corresponds to elementary school in the United States, since fourth graders do not have the option of going to college in their 7th year of school.

A second example may be used to highlight semantic differences in how US-raised and US-educated Spanish-speaking respondents answer this question. The example below shows this respondent’s initial response could have been interpreted as “college graduate.” After much probing it was clear that the respondent had completed high school. *Colegio* in Spanish is a common synonym for “school,” and thus is potentially a false cognate. Also note that when the respondent explained high school had “semesters,” she reported finishing the “fourth” semester. When asked if she had received a diploma, the respondent said “yes,” confirming she was a high school graduate.

Resp: Terminé el colegio.

Resp: I finished “el colegio.”³

Int: ¿Qué año?

Int: What year?

Resp: Preparatoria.

Resp: “Preparatoria” [high school].

³ “Colegio” looks like the English word “college,” but may be used as a word for “school” without referring to a specific grade or type of school.

Int: ¿Pero qué año o grado?
Int: But what year or grade?

Resp: Bueno, la preparatoria tiene semestres. El cuarto semestre.
Resp: Well, [high school] has semesters. The fourth semester.

Int: ¿Recibió diploma?
Int: Did you receive a diploma?

Resp: Sí.
Resp: Yes.

Int: ¿Dónde estudió?
Int: Where did you study?

Resp: Aquí.
Resp: Here [in Texas].

Although most respondents' answers were eventually mapped onto one of the categories, very few were not. The few that were not mapped were for respondents who had completed vocational education in a country outside the United States. For example, one of the respondents had studied sewing for three years after elementary school. She had a certificate in *corte y confección* [sewing] and worked as a seamstress. It is likely that in terms of formal schooling, she finished the sixth grade and perhaps that would be the most accurate response in her case

Table 1 shows respondents' understanding of the education system in their home countries and the USA (for those who were schooled in the USA). Although the labels and actual levels may not be accurate, what is significant is the table raises red flags for education or literacy surveys, since levels of education and grade numbering systems in the USA and other countries may not necessarily match, and respondents are unlikely to interpret education levels consistently even among those educated in the USA. Perhaps the greatest lesson in terms of this question is relying on a vague ordinal response is not always appropriate, at least in the case of questions that ask about levels of education.

Table 1: Respondents' understanding of education systems between elementary and high school levels in country of origin

Country	Elementary	Middle School	High School
Ecuador	Primaria 1 st – 6 th	Secundaria 1 st – 6 th	
El Salvador	Primaria 1 st – 6 th	Plan B<sico 1 st – 3 rd	Bachillerato 1 st – 3 rd
Mexico	Primaria 1 st – 6 th	Secundaria 1 st – 3 rd	Preparatoria 1 st – 3 rd
USA	Elementary 1 st – 6 th	Middle School 7 th – 8 th OR Junior High School 7 th – 9 th	High School 9 th – 12 th OR 10 th – 12 th

Recommended change:

FRs should ALWAYS probe for “type of school” when a respondent reports an ordinal number. This will ensure that “third” is not recorded as “third grade” when it potentially could be “third grade of *secundaria*” (9th grade) or “third grade of *preparatoria*” (senior year in high school). If the respondent went to school outside the United States, FRs should be trained to probe for the corresponding level in the US.

P22

Last week, did you do any work for either pay or profit?

La semana pasada, ¿hizo usted algún trabajo por paga o por lucro?

Some respondents knew the meaning of the word *lucro*, a marker for “profit.”

A few reported not knowing what the term meant. Many misinterpreted the term in the ACS context. All of the respondents who misinterpreted *lucro* ascribed the term a negative connotation. For example, they thought the term meant taking financial advantage of someone else or some process, gaining something they did not earn or deserve, earnings they had obtained through cheating or some illegal or unethical means.

Quantitative summary:

Lucro

Correct meaning 33%

Don't know 25%

Incorrect meaning 42%

NOTE: always had negative connotation

Recommended change:

La semana pasada, ¿le pagaron o recibió [<usted>/<NAME>] algún beneficio o remuneración por trabajo que [<usted>/<NAME>] haya hecho?

Fill:

If respondent eq subject

Display <usted>

Else

If this is a proxy interview

Display <[NAME]>

P40

Did you receive any wages, salary, tips, bonuses or commissions?

¿Usted recibió sueldo, propinas, bonos o comisiones?

Very few respondents seemed to have difficulty with the term *bonos*. The difficulty seemed to lie in articulating what bonuses were, though respondents were able to explain bonuses are not part of salary or wages.

Quantitative summary:

Bonos

Correct meaning	67%
Don't know	8%
Incorrect meaning	17%

Recommended change:

¿[<Usted>/<NAME>] recibió sueldo, propinas, bonos o comisiones?

Fill:

If respondent eq subject

Display <usted>

Else

If this is a proxy interview

Display <[NAME]>

P40D

Did you receive any Social Security or Railroad Retirement benefits during the past 12 months?
¿Recibió usted algunos pagos por beneficio del seguro social o del retiro ferroviario por los últimos 12 meses?

This question elicits a rapid response from respondents. However, only a few of them interpreted “Social Security” as intended. Others reported not knowing what *seguro social* meant. Because most people answer this question rapidly and because most people have an (incorrect) interpretation of the term *seguro social*, questions such as these will not show high rates of “don’t know,” refuse, or missing. Thus, the mathematical checks appear to be healthy on the surface.

Cognitive testing confirmed that respondents either do not know what the term *seguro social* is, or they are interpreting the term in a manner that is not consistent with the intent of the question. These types of questions require special attention from bilingual personnel who are familiar with linguistic and cultural nuances in order to identify terms that are used in other cultures, and that certain terms may be interpreted in those different contexts.

Most respondents interpreted the term *seguro social* as public assistance in general or as health-related benefits. This is understandable, since some Spanish-speaking countries use this term to refer to their national welfare or public health care systems. For example, some respondents reported being familiar with the Mexican “*Instituto Mexicano del Seguro Social*,” also known as “*el Seguro*” or “IMSS.” This “*Seguro*” is one of two major national health care systems that operate a chain of hospitals and health-related services for workers whose employer pays a fee to the IMSS. The “*Seguro*” offers health services (medical, dental, rehab and social services) at no cost to workers and their dependents. Retired workers who were covered by the IMSS may keep their coverage; and although this may be a retirement benefit, “*el Seguro*” does not always pay a pension.

Although this question is grammatically correct, it is not collecting adequate data, since only a few respondents interpreted the term in the desired context. It is clear that this question requires testing alternative wording to alleviate this problem. One option is to keep the English name “Social Security,” which may help respondents realize that the question asks about benefits in the United States. Another option is to add a short explanation about what Social Security payments include. This will steer respondents away from interpreting the concept in general welfare or healthcare terms. A third alternative may be to test using a combination of both suggestions. A comparative approach will help determine which wording is best understood as intended.

Quantitative Summary:

Social Security

Correct meaning	17%	
Don’t know	17%	
Incorrect meaning	66%	(public assistance 33%; healthcare-related 33%)

P40B

Did you receive any self-employment income during the past 12 months/

¿Recibió usted algún ingreso por empleo por cuenta propia durante los últimos 12 meses?

Many respondents were able to define *cuenta propia* as a marker for self-employment. Some thought it meant “business owner,” and a few thought it referred to money in the bank or income tax related. Although the income tax reference may have been one respondent’s attempt to provide an answer, the bank reference is understandable. *Cuenta propia* in a banking context literally means “own account,” as in having a bank account in your own name and not a joint account with someone else. This homonym may be clarified by changing *empleo por cuenta propia* to *trabajo que haya hecho por su propia cuenta* to avoid the standard syntax used in banking.

Quantitative summary:

Cuenta propia

Correct meaning	50%	
Business owner	25%	
Don’t know	8%	
Incorrect meaning	17%	(money in the bank, tax-paying)

Recommended change:

¿Recibió [< usted>/<NAME>*] algún ingreso por trabajo que haya hecho por su propia cuenta durante los últimos 12 meses?*

Fill:

If respondent eq subject

Display *<usted>*

Else

If this is a proxy interview

Display *<[NAME]>*