

# **Respondent Effects Associated with Questionnaires Designed to Accommodate Survey Processing<sup>1</sup>**

Deborah H. Griffin, Sandra L. Clark

American Community Survey Office, U.S. Census Bureau, 4600 Silver Hill Road,  
Washington, DC 20233

## **Abstract**

Survey managers acknowledge that paper questionnaires must be designed to accommodate the requirements of data capture systems. It is important, however, to recognize that such design elements can have an effect on respondent behavior. This paper reminds us that even fairly minor changes in the format of a questionnaire can jeopardize successful completion by respondents. In 2005, the paper questionnaire used in the American Community Survey was redesigned to transition from a key-from-paper to an imaging and key-from-image (KFI) data capture methodology. On the surface the proposed changes appeared fairly minor--adding additional white space and removing horizontal lines between questions. The KFI system experts proposed most of the changes and little attention was given to possible respondent implications. The Census Bureau conducted a pretest of this revised questionnaire and analysis of the results identified an increase in nonresponse for selected questions. A closer review of the changes identified the potential for respondent navigation errors. A questionnaire design team was established to redesign this questionnaire to meet technical KFI requirements and address respondent visual miscues apparent in the new questionnaire. This paper reports on the test of the initial and redesigned forms. It provides a valuable lesson in the need to pay attention to both the technical requirements and the visual dynamics of respondent-administered survey instruments.

**Key Words:** Data Collection, Data Processing, Quality

## **1. Introduction**

The American Community Survey (ACS) is a mixed mode survey conducted by the U.S. Census Bureau that produces annual demographic, housing, social, and economic characteristics for the nation, states, counties, and areas as small as census tracts and block groups. The ACS began national implementation in 2000 and expanded in 2005 from a demonstration stage annual sample of about 800,000 to an approximate 3 million annual sample. The first mode of data collection in the ACS is mail. The mail questionnaire includes about 105 questions (or parts of questions) that require responses in the form of both check boxes and write-ins.

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<sup>1</sup> This report is released to inform interested parties of research and to encourage discussion. Any views expressed on methodological issues are those of the authors and not necessarily those of the U.S. Census Bureau.

Of the 230,000 questionnaires mailed each month, about 106,000 are completed and returned by mail. The workload for data capture therefore includes about 1.3 million questionnaires every year. Significant data capture backlogs were experienced in 2005 due to the large sample size increase. To reduce overall costs and improve the efficiency of data capture operations, the Census Bureau decided to shift from a key-from-paper (KFP) data capture system to an integrated Computer-Assisted Data Entry (iCADE) system. The iCADE system combines optical mark recognition and software-directed keying of write-in entries from digital images produced by scanning the paper forms.

While the questionnaire formatting requirements for KFP were limited, the iCADE system required several revisions to the form to facilitate the software's correct orientation and interpretation of responses. These revisions are the focus of this paper. Two attempts were needed to ensure that changes in questionnaire design to accommodate survey processing did not influence respondent behavior in correctly completing the questionnaire.

## 2. Background

A well-designed questionnaire will facilitate respondent navigation and make it more likely that respondents complete the questionnaire as intended. A set of design principles for self-administered questionnaires is proposed in Dillman (2000). Several of his principles speak to the need to define a clear navigational path and create respondent visual navigation guides. The choice of data capture method should never interfere with the ability to meet these principles. While survey designers need to consider processing requirements, they should never choose a questionnaire design that fulfills those requirements at the expense of the respondent.

The task of completing a mail questionnaire is a visual exercise. The visual design of the questionnaire is therefore central to successful completion of this task by a survey respondent. Jenkins and Dillman (1997) stress the value of designs that follow natural reading and comprehension processes to make sense of visual information. These processes are founded in the concepts of basic Gestalt psychology. Of the seven design principles proposed in Norman (1988), the principle most relevant to this research is the need to make the task clearly visible through the use of visual layouts that clarify the sequence of tasks and the placement of responses. Research has demonstrated that alternative questionnaire formats influence respondent behavior and ultimately, respondent success. For examples, see Redline, Dillman, Dajani, and Scaggs (2003) and Christian and Dillman (2004).

A survey questionnaire, such as the one used in the mail mode of the ACS, relies on verbal, symbolic, numeric, and graphical languages to explain the respondent's task. See Redline and Dillman (2002) for more information on these visual languages. The graphical language, including the format, spatial presentation, use of color and shapes, were manipulated in this redesign effort.

Self-administered questionnaires use multiple conventions to collect respondent information. This paper looks at the use of a matrix or grid that includes questions requiring a check box response, a write-in entry, or both a check box and write-in response.

### 3. Matrix/Grid Formats

The ACS collects data for all persons in a household. Up until 2008, basic demographic data in the ACS were collected in a matrix where a series of questions were listed across the top of the page and household members were listed down the left side of the page. Respondents were supposed to answer each question for each individual by reading the question once and providing responses for all household members. Based on testing in 2006, the format for collecting basic demographic data was changed to a “sequential” style (Chesnut, 2008). It is this matrix design that was changed the most in the data capture system transition. Similar matrix designs are often used in self-administered questionnaires to save space. Dillman, Smyth, and Christian (2009) acknowledge the inherent complexities of matrix-formatted questionnaires. In particular, they note that, “the structure of the matrix leaves it up to the respondent as to whether to navigate the matrix and fill in answers primarily in columns or in rows or some combination of both.” Questionnaire design efforts can improve or complicate respondent horizontal or vertical navigation. Dillman, Gertseva, and Mahon-Haft (2005) summarized the visual design principles used to support redesigned matrices in the United States Department of Agriculture’s Agricultural Resource Management Survey. They encouraged respondent navigation with numerous visual cues including the addition of dark horizontal lines and the use of reverse print. Changes were made to these survey forms to facilitate improved respondent navigation across a matrix but no formal testing was undertaken to provide empirical data on the effect of those changes.

### 4. Tests of Redesigned Matrix

#### 4.1 Initial Test

##### 4.1.1 Design Changes

Several questionnaire design changes were needed to shift from a KFP data capture system to one based in iCADE. A team of iCADE engineers redesigned the 2005 ACS questionnaire to accommodate iCADE data processing requirements. This initial iCADE questionnaire (iCADE1) reflected significant changes to the 2-page grid (or matrix) designed for the collection of names and basic demographic data (sex, age, relationship, marital status, race, and Hispanic origin/ethnicity.) Borders and grid lines were altered and a white margin was added between the two pages. Figures 1a and 1b (in Appendix) display the 2-page grid for the KFP form and the iCADE form. Note that the thick border running across the top of the page was eliminated in iCADE1. The grid lines that were originally black were replaced with light green lines in the redesigned iCADE1 form. Major changes were made to the centerfold area—iCADE1 added a black line border around each page and a white margin between the two pages.

##### 4.1.2 Methodology

In November 2005, an experimental sample panel of 49,702 addresses was used to test this initial iCADE questionnaire. All addresses in this panel received the initial iCADE questionnaire shown in Figure 1b (iCADE1). The ACS production sample of 227,046 addresses for November 2005 was used as the control with all addresses receiving the 2005 KFP questionnaire shown in Figure 1a (KFP1). Both mailings followed identical schedules and mailing strategies that included an advance letter, initial mailing package (with a questionnaire), reminder postcard, and replacement-mailing package (with a second questionnaire) that was mailed to nonrespondents only. To eliminate potential

effects of data capture method, the mail-returned questionnaires from both panels were data captured using identical KFP procedures. The experimental sample panel only used the mail mode for data collection and not telephone and personal visit as in the production ACS. For this reason, we only included mail returns before the start of the telephone phase for production ACS and the first month of returns for the experimental sample panel.

Unedited data from mail returned questionnaires were used to produce item nonresponse rates. The item nonresponse rates for this analysis are defined as the ratio of the number of valid responses to the number of questions requiring a response. All item nonresponse rates are weighted to reflect the ACS sample design. Statistical testing was conducted using a 90 percent confidence level.

#### 4.1.3 Results

A quick tabulation of item nonresponse rates for selected questions revealed increases in item nonresponse for the questions included in the 2-page grid. See Table 1. Item nonresponse rates for all six questions were found to be significantly higher for the iCADE1 questionnaire. The three questions on page 3, the right-hand page (marital status, Hispanic origin/ethnicity, and race) were especially elevated.

**Table 1.** Item Nonresponse Rates for Questions Included in the Grid

| Question                      | KFP1<br>(%) | iCADE1<br>(%) | Difference<br>(iCADE1-<br>KFP1)<br>(%) | Statistical<br>Significance* |
|-------------------------------|-------------|---------------|--|------------------------------|
| <b>Page 2 (left of fold)</b>  |             |               |  |                              |
| Sex                           | 4.0         | 6.2           | 2.2                                    | Yes                          |
| Age                           | 2.4         | 3.4           | 1.0                                    | Yes                          |
| Relationship                  | 2.5         | 3.0           | 0.5                                    | Yes                          |
| <b>Page 3 (right of fold)</b> |             |               |  |                              |
| Marital Status                | 5.1         | 9.6           | 4.5                                    | Yes                          |
| Hispanic origin               | 7.5         | 13.3          | 5.8                                    | Yes                          |
| Race                          | 6.3         | 10.8          | 4.5                                    | Yes                          |

\*Statistical significance tested at the 90 percent confidence level

A review of the initial iCADE questionnaire concluded that the changes in format introduced navigation problems. The 2-page matrix design requires respondents to match rows and columns across two pages. The iCADE1 design reduced respondent visual cues linking these two pages. It removed the thick border at the top and bottom of these pages that served to link the pages together. The boxing of the questionnaire area on each page, which was added to assist optical scanning, separated pages 2 and 3. The increased white space at the centerfold reinforced the separateness of the two pages.

In addition, the redesign removed several navigation guides that are critical to successful matrix completion—elements conveying that the pages must be read both vertically and horizontally. Specifically, horizontal and vertical lines connecting the questions at the top of each column with the persons in each row were visually diminished. Respondents got lost navigating the questionnaire and many skipped over the questions on page 3.

As a consequence, the Census Bureau decided to delay the shift to iCADE data capture and redesign efforts were undertaken that would accommodate iCADE-processing requirements without a negative effect on respondent behavior. Staff acknowledged the complexity of the 2-page matrix design, especially for respondents to accurately navigate to the questions on page 3. In 2006 the ACS continued using a KFP questionnaire, identical in content and format to the one used in 2005.

## 4.2 Second Test

### 4.2.1 Design Changes

Using the information gleaned from the pre-test, a second team that included iCADE engineers, survey methodologists, and questionnaire design experts redesigned the form, which was put into production in 2007. This redesign was focused on improving horizontal and vertical navigation and reinforcing the connection between page 2 and page 3. Figure 1c (in the Appendix) displays the 2-page grid for this second iCADE form (iCADE2). Specifically, to more clearly connect the two pages, where iCADE1 eliminated the thick border at the top of the page, a narrower border was added back in iCADE2. With respect to the centerfold area, iCADE2 retained the black line around each page but replaced the white margin with a green column to mimic the other grid columns. Both of these visual changes are based in Gestalt psychology, recognizing that our vision uses borders, edges, and patterns to establish groupings. Here we minimized the strong design elements that created two separate groupings (i.e., boxes) across the two pages. The Law of Proximity also supports these changes—visual elements closest together are seen as belonging together. The two pages are brought closer together by these format changes.

In addition, to improve horizontal and vertical navigation, iCADE2 restored the black grid lines that iCADE1 had replaced as light green and iCADE2 also added alternate shadings of green across rows of the grid to more clearly define horizontal organization.

Table 2 summarizes the changes made to the grid relative to the KFP form for the two iCADE questionnaires. Attachment 1 provides facsimiles of the three questionnaires.

**Table 2.** Summary of Grid Formatting Changes

|   | iCADE1  | iCADE2  |
|---|---|---|
| Top grid borders                                    | Thick border was replaced with a black line border  | The thick border was added back, but reduced in width.                            |
| Side grid borders                                   | A black line border was added to the right and left sides of each page                                    | Same as iCADE1  |
| Interior grid lines                                 | Lighter, green grid lines were added to replace the black horizontal and vertical grid lines              | The black horizontal and vertical grid lines were added back                      |
| Center margin                                       | A white margin was added to the centerfold area   | The white margin was replaced with a green column to mimic the other grid columns |
| Bottom grid borders, barcodes, and page identifiers | Thick border was replaced with a black line border, barcodes and page identifiers were added to each page | Same as iCADE1  |

#### 4.2.2. Methodology

Timing constraints precluded pre-testing the revised questionnaire. The redesigned iCADE questionnaire shown in Figure 1c (iCADE2) was mailed to the full ACS sample beginning in January 2007. The iCADE questionnaire used in 2007 was identical in content to the 2006 KFP questionnaire (KFP2), which was identical in content and format to the November 2005 KFP questionnaire used as the control for the initial experiment (KFP1). Mail returns received from the January through April 2007 sample panels were all captured using the same data capture procedures used in 2006. For this reason, we chose to compare mail returns from January through April of 2007 with mail returns from January through April of 2006. As was true for the first experiment, both mailings followed identical schedules and strategies and all mail-returned questionnaires were captured using the same methods (key from paper). While this design does not control for possible differences in respondent behavior due to the year, we do not expect this to be a major limitation.

Unedited data from mail returned questionnaires were used to produce item nonresponse rates. Item nonresponse rates were calculated using the same definitions and methods used in the initial test. Our hypothesis was that the design changes would facilitate respondent navigation across the two pages and would therefore result in a reduction in the levels of item nonresponse, especially for the items on page 3.

#### 4.2.3 Results

Table 3 shows comparisons of item nonresponse for the KFP questionnaire with the redesigned iCADE questionnaire. The iCADE questionnaire continued to show increases in the item nonresponse rates for sex but for all other questions the increases in nonresponse that were found in the initial iCADE form were reduced or eliminated.

**Table 3.** Item Nonresponse Rates for Questions Included in the Grid

| Question                      | KFP2<br>(%) | iCADE2<br>(%) | Difference<br>(iCADE2-<br>KFP2)<br>(%) | Statistical<br>Significance* |
|-------------------------------|-------------|---------------|--|------------------------------|
| <b>Page 2 (left of fold)</b>  |             |               |  |                              |
| Sex                           | 4.2         | 6.6           | 2.5                                    | Yes                          |
| Age                           | 2.5         | 2.7           | 0.1                                    | No                           |
| Relationship                  | 2.5         | 2.5           | 0.0                                    | No                           |
| <b>Page 3 (right of fold)</b> |             |               |  |                              |
| Marital Status                | 5.1         | 5.2           | 0.2                                    | Yes                          |
| Hispanic origin               | 7.5         | 7.6           | 0.1                                    | Yes                          |
| Race                          | 6.5         | 6.5           | 0.0                                    | No                           |

\*Statistical significance tested at the 90 percent confidence level

The reduction in the nonresponse rates for the marital status, Hispanic origin, and race items can be attributed to the changes made to the redesigned iCADE questionnaire. The results suggest that the navigational flow of the form was improved. The darker grid lines (as shown on the redesigned iCADE questionnaire in Figure 1c) helped separate the questions, and clarify the person rows. The flow directing the respondent to page three was enhanced by the addition of the green columns in the centerfold, as well as, the re-addition of the border running across the top of both pages. The improved navigation in the redesigned iCADE form lead respondents to the items on page three, rather than losing them, as the initial iCADE questionnaire seemed to do (shown in Figure 1b).

The higher nonresponse rate for the sex item is somewhat puzzling. This rate was 2.5 percentage points higher than the rate from the KFP questionnaire, similar to the difference found in the test of the initial iCADE form. This finding suggests that the changes to the gridlines on both iCADE questionnaires did not have an affect on response patterns for this question.

The sex item is the first question on the form, and it is different than the other check box responses of its size. For example, it is the only item with two response categories where the categories are not a “yes/no” response. In addition, the space between the question and the response categories is the largest on the questionnaire. For these reasons, it is possible that this item could have been affected differently than the other questions requiring check box responses. Response may have been impacted by the “halos” surrounding the check boxes, or the difference in font. The checkboxes themselves are also slightly different – the corners of the boxes are rounded in the KFP version and square in the iCADE version, and the line border is slightly thicker in the KFP version. The sex item may have also been affected by the changes to the write-in boxes located on both sides of the question. On both iCADE questionnaires, the write-in boxes are slightly larger and have black borders, which may draw greater attention to those items. Respondent’s vision may be directed to these items and away from the sex item, forcing them to skip the sex item entirely. Overall, the sex item seems to be more delimited in the KFP version and seems to blend in with the other items in the iCADE versions.

Interestingly, when a slightly different ACS grid design was compared with the ACS sequential design (Chesnut, 2008) the sex question was moved to be the second question asked, not the first. In this location the item nonresponse (even in a grid) was reduced to 2.2 percent.

## 5. Conclusions

Survey designers must recognize that completing a self-administered questionnaire is a visual exercise. For this reason attention must be paid to the potential effect of questionnaire design changes on respondent visual cues for such changes can influence respondent behavior. Questionnaire design changes necessitated by a shift to a new technology should not be undertaken without consideration of the potential impact on respondent behavior. While survey processing requirements warrant attention, they should never be followed at the expense of the respondent.

## Acknowledgments

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Figure 1a. KFP questionnaire 2-page grid

### List of Residents

**READ THESE INSTRUCTIONS FIRST**

Please fill out this form as soon as possible after receiving it in the mail.

- LIST everyone who is living or staying here for more than 2 months.
- LIST anyone else staying here who does not have another usual place to stay.
- DO NOT LIST anyone who is living somewhere else for more than 2 months, such as a college student living away.

If this place is a vacation home or a temporary residence where no one in this household stays for more than 2 months, do not list any names in the list of residents. Complete only pages 4, 5, and 6 and return the form.

If YOU ARE NOT SURE WHO TO LIST, CALL 1-800-354-7271.

➔ If there are more than five people, list them here. We may call you for more information about them.

➔ After you've created the List of Residents, answer the questions across the top of the page for the first five people on the list.

| Person 1  | Person 2   | Person 3  | Person 4   | Person 5   |
|---|--|---|--|--|
| Last Name (please print)  | Last Name (please print)   | Last Name (please print)  | Last Name (please print)   | Last Name (please print)   |
| First Name MI   | First Name MI  | First Name MI   | First Name MI  | First Name MI  |
| <b>1</b> What is this person's sex?<br><input type="checkbox"/> Male<br><input type="checkbox"/> Female | <b>2</b> What is this person's age and what is this person's date of birth?<br><i>Print numbers in boxes.</i><br>Age (in years)    Month    Day    Year of birth | <b>3</b> How is this person related to Person 1?<br><input type="checkbox"/> Person 1<br><i>(Person 1 is the person living or staying here in whose name this house or apartment is owned, being bought, or rented. If there is no such person, start with the name of any adult living or staying here.)</i><br>Relationship of Person 2 to Person 1:<br><input type="checkbox"/> Husband or wife <input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter <input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister <input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother <input type="checkbox"/> Foster child<br><input type="checkbox"/> Grandchild <input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative<br><input type="checkbox"/> Other relative | Relationship of Person 4 to Person 1:<br><input type="checkbox"/> Husband or wife <input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter <input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister <input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother <input type="checkbox"/> Foster child<br><input type="checkbox"/> Grandchild <input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative<br><input type="checkbox"/> Other relative | Relationship of Person 5 to Person 1:<br><input type="checkbox"/> Husband or wife <input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter <input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister <input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother <input type="checkbox"/> Foster child<br><input type="checkbox"/> Grandchild <input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative<br><input type="checkbox"/> Other relative |

**4** What is this person's marital status?

Now married  
 Widowed  
 Divorced  
 Separated  
 Never married

**5** Is this person Spanish/Hispanic/Latino?  
 NOTE: Please answer BOTH Questions 5 and 6.  
 Mark (X) the "No" box if not Spanish/Hispanic/Latino.

No, not Spanish/Hispanic/Latino  
 Yes, Mexican, Mexican Am., Chicano  
 Yes, Puerto Rican  
 Yes, Cuban  
 Yes, other Spanish/Hispanic/Latino — *Print group.*

**6** What is this person's race? Mark (X) one or more races to indicate what this person considers himself/herself to be.

White  
 Black or African American  
 American Indian or Alaska Native — *Print name of enrolled or principal tribe.*  
 Asian Indian  
 Chinese  
 Filipino  
 Japanese  
 Korean  
 Vietnamese  
 Other Asian — *Print race.*

Native Hawaiian  
 Guamanian or Chamorro  
 Samoan  
 Other Pacific Islander — *Print race below.*  
 Some other race — *Print race below.*

| Person 9                 | Person 10                | Person 11                | Person 12                |
|--------------------------|--------------------------|--------------------------|--------------------------|
| Last Name (please print) | Last Name (please print) | Last Name (please print) | Last Name (please print) |
| First Name MI            | First Name MI            | First Name MI            | First Name MI            |

➔ When you are finished, turn the page and continue with the Housing section. 3

Figure 1b. iCADE1 questionnaire 2-page grid

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### List of Residents

**READ THESE INSTRUCTIONS FIRST**

Please fill out this form as soon as possible after receiving it in the mail.

- **LIST** everyone who is living or staying here for more than 2 months.
- **LIST** anyone else staying here who does not have another usual place to stay.
- **DO NOT LIST** anyone who is living somewhere else for more than 2 months, such as a college student living away.

If this place is a vacation home or a temporary residence where no one in this household stays for more than 2 months, do not list any names in the List of Residents. Complete only pages 4, 5, and 6 and return the form.

IF YOU ARE NOT SURE WHOM TO LIST, CALL 1-800-554-7271.

If there are more than five people, list them here. We may call you for more information about them.

After you've created the List of Residents, answer the questions across the top of this page for the first five people on the list.

| Person 1   | Person 2   | Person 3   | Person 4   |
|--|--|--|--|
| Last Name (Please print) _____<br>First Name _____ MI _____  | Last Name (Please print) _____<br>First Name _____ MI _____  | Last Name (Please print) _____<br>First Name _____ MI _____  | Last Name (Please print) _____<br>First Name _____ MI _____  |
| Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female<br>Age (in years) _____<br>Month _____ Day _____ Year of birth _____  | Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female<br>Age (in years) _____<br>Month _____ Day _____ Year of birth _____  | Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female<br>Age (in years) _____<br>Month _____ Day _____ Year of birth _____  | Sex: <input type="checkbox"/> Male <input type="checkbox"/> Female<br>Age (in years) _____<br>Month _____ Day _____ Year of birth _____  |
| Relationship to Person 1:<br><input checked="" type="checkbox"/> Person 1<br>(Person 1 is the person living or staying here in whose name this house or apartment is owned, being bought, or rented. If there is no such person, start with the name of any adult living or staying here.) | Relationship to Person 1:<br><input type="checkbox"/> Husband or wife <input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter <input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister <input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother <input type="checkbox"/> Foster child<br><input type="checkbox"/> Grandchild <input type="checkbox"/> In-law <input type="checkbox"/> Other relative | Relationship to Person 1:<br><input type="checkbox"/> Husband or wife <input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter <input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister <input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother <input type="checkbox"/> Foster child<br><input type="checkbox"/> Grandchild <input type="checkbox"/> In-law <input type="checkbox"/> Other relative | Relationship to Person 1:<br><input type="checkbox"/> Husband or wife <input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter <input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister <input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother <input type="checkbox"/> Foster child<br><input type="checkbox"/> Grandchild <input type="checkbox"/> In-law <input type="checkbox"/> Other relative |

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**NOTE: Please answer BOTH Questions 5 and 6.**

| Person 5   | Person 6   | Person 7   | Person 8   |
|--|--|--|--|
| Last Name (Please print) _____<br>First Name _____ MI _____  | Last Name (Please print) _____<br>First Name _____ MI _____  | Last Name (Please print) _____<br>First Name _____ MI _____  | Last Name (Please print) _____<br>First Name _____ MI _____  |
| Marital status:<br><input type="checkbox"/> New married<br><input type="checkbox"/> Widowed<br><input type="checkbox"/> Divorced<br><input type="checkbox"/> Separated<br><input type="checkbox"/> Never married   | No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____   | No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____   | No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____   |
| Race:<br><input type="checkbox"/> White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ |

3

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APOR - May 14-17, 2009

Figure 1c. iCADE2 questionnaire 2-page grid

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### List of Residents

**READ THESE INSTRUCTIONS FIRST**

This survey collects information about the people who are living or staying here for more than 2 months.

On the List of Residents -

- Include everyone living or staying here for more than 2 months. In the Person 1 space, list one of the people living here who owns or rents this house or apartment. Remember to include yourself on the list if you are staying here for more than 2 months.
- Include anyone staying here who does not have another place to stay, even if they are here for 2 months or less.
- Do not include anyone who is living somewhere else for more than 2 months, such as a college student living away.

If no one is staying here for more than 2 months, do not list any names in the List of Residents. Complete only pages 4, 5, and 6 and return the form.

If you are not sure whom to list, call 1-800-394-7271.

If there are more than five people living or staying here, print their names in the spaces for Person 6 through Person 12. We may call you for more information about them.

After you complete the List of Residents, answer the questions asked at the top of pages 2 and 3 for the first five people on the list.

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| Person 1   | 1 What is this person's sex?                                     | 2 What is this person's age and what is this person's date of birth?<br><i>Print numbers in boxes.</i> | 3 How is this person related to Person 1?<br><br><i>(Person 1 is the person living or staying here in whose name this house or apartment is owned, being bought, or rented. If there is no such person, start with the name of any adult living or staying here.)</i>  |
|--|--|--|--|
| <b>Person 1</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ | <input type="checkbox"/> Male<br><input type="checkbox"/> Female | Age (in years) _____<br>Month Day Year of birth _____  | <input checked="" type="checkbox"/> Person 1<br>_____<br><input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter<br><input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister<br><input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother<br><input type="checkbox"/> Grandchild<br><input type="checkbox"/> Foster child<br><input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative                             |
| <b>Person 2</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ | <input type="checkbox"/> Male<br><input type="checkbox"/> Female | Age (in years) _____<br>Month Day Year of birth _____  | Relationship of Person 2 to Person 1.<br><input type="checkbox"/> Husband or wife<br><input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter<br><input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister<br><input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother<br><input type="checkbox"/> Grandchild<br><input type="checkbox"/> Foster child<br><input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative |
| <b>Person 3</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ | <input type="checkbox"/> Male<br><input type="checkbox"/> Female | Age (in years) _____<br>Month Day Year of birth _____  | Relationship of Person 3 to Person 1.<br><input type="checkbox"/> Husband or wife<br><input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter<br><input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister<br><input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother<br><input type="checkbox"/> Grandchild<br><input type="checkbox"/> Foster child<br><input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative |
| <b>Person 4</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ | <input type="checkbox"/> Male<br><input type="checkbox"/> Female | Age (in years) _____<br>Month Day Year of birth _____  | Relationship of Person 4 to Person 1.<br><input type="checkbox"/> Husband or wife<br><input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter<br><input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister<br><input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother<br><input type="checkbox"/> Grandchild<br><input type="checkbox"/> Foster child<br><input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative |
| <b>Person 5</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ | <input type="checkbox"/> Male<br><input type="checkbox"/> Female | Age (in years) _____<br>Month Day Year of birth _____  | Relationship of Person 5 to Person 1.<br><input type="checkbox"/> Husband or wife<br><input type="checkbox"/> Roomer, boarder<br><input type="checkbox"/> Son or daughter<br><input type="checkbox"/> Housemate, roommate<br><input type="checkbox"/> Brother or sister<br><input type="checkbox"/> Unmarried partner<br><input type="checkbox"/> Father or mother<br><input type="checkbox"/> Grandchild<br><input type="checkbox"/> Foster child<br><input type="checkbox"/> In-law<br><input type="checkbox"/> Other relative |
| <b>Person 6</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ |  |  |  |
| <b>Person 7</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ |  |  |  |
| <b>Person 8</b><br>Last Name (Please print) _____<br>First Name _____ MI _____ |  |  |  |

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**4 What is this person's marital status?**

**5 Is this person Spanish/Hispanic/Latino? Mark (X) the "No" box if not Spanish/Hispanic/Latino.**

**6 What is this person's race? Mark (X) one or more races to indicate what this person considers himself/herself to be.**

NOTE: Please answer BOTH Questions 5 and 6.

|   |   |  |  |  |
|---|---|--|--|--|
| <input type="checkbox"/> Now married<br><input type="checkbox"/> Widowed<br><input type="checkbox"/> Divorced<br><input type="checkbox"/> Separated<br><input type="checkbox"/> Never married | <input type="checkbox"/> No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | <input type="checkbox"/> Native Hawaiian<br><input type="checkbox"/> Guamanian or Chamorro<br><input type="checkbox"/> Samoan<br><input type="checkbox"/> Other Pacific Islander - Print race below _____<br><input type="checkbox"/> Some other race - Print race below _____ |
| <input type="checkbox"/> Now married<br><input type="checkbox"/> Widowed<br><input type="checkbox"/> Divorced<br><input type="checkbox"/> Separated<br><input type="checkbox"/> Never married | <input type="checkbox"/> No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | <input type="checkbox"/> Native Hawaiian<br><input type="checkbox"/> Guamanian or Chamorro<br><input type="checkbox"/> Samoan<br><input type="checkbox"/> Other Pacific Islander - Print race below _____<br><input type="checkbox"/> Some other race - Print race below _____ |
| <input type="checkbox"/> Now married<br><input type="checkbox"/> Widowed<br><input type="checkbox"/> Divorced<br><input type="checkbox"/> Separated<br><input type="checkbox"/> Never married | <input type="checkbox"/> No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | <input type="checkbox"/> Native Hawaiian<br><input type="checkbox"/> Guamanian or Chamorro<br><input type="checkbox"/> Samoan<br><input type="checkbox"/> Other Pacific Islander - Print race below _____<br><input type="checkbox"/> Some other race - Print race below _____ |
| <input type="checkbox"/> Now married<br><input type="checkbox"/> Widowed<br><input type="checkbox"/> Divorced<br><input type="checkbox"/> Separated<br><input type="checkbox"/> Never married | <input type="checkbox"/> No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | <input type="checkbox"/> Native Hawaiian<br><input type="checkbox"/> Guamanian or Chamorro<br><input type="checkbox"/> Samoan<br><input type="checkbox"/> Other Pacific Islander - Print race below _____<br><input type="checkbox"/> Some other race - Print race below _____ |
| <input type="checkbox"/> Now married<br><input type="checkbox"/> Widowed<br><input type="checkbox"/> Divorced<br><input type="checkbox"/> Separated<br><input type="checkbox"/> Never married | <input type="checkbox"/> No, not Spanish/Hispanic/Latino<br><input type="checkbox"/> Yes, Mexican, Mexican Am., Chicano<br><input type="checkbox"/> Yes, Puerto Rican<br><input type="checkbox"/> Yes, Cuban<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> White<br><input type="checkbox"/> Black or African American<br><input type="checkbox"/> American Indian or Alaska Native - Print name of enrolled or principal tribe _____<br><input type="checkbox"/> Yes, other Spanish/Hispanic/Latino - Print group _____ | <input type="checkbox"/> Asian Indian<br><input type="checkbox"/> Chinese<br><input type="checkbox"/> Filipino<br><input type="checkbox"/> Japanese<br><input type="checkbox"/> Korean<br><input type="checkbox"/> Vietnamese<br><input type="checkbox"/> Other Asian - Print race _____ | <input type="checkbox"/> Native Hawaiian<br><input type="checkbox"/> Guamanian or Chamorro<br><input type="checkbox"/> Samoan<br><input type="checkbox"/> Other Pacific Islander - Print race below _____<br><input type="checkbox"/> Some other race - Print race below _____ |
| <b>Person 9</b><br>Last Name (Please print) _____<br>First Name _____ MI _____  | <b>Person 10</b><br>Last Name (Please print) _____<br>First Name _____ MI _____   | <b>Person 11</b><br>Last Name (Please print) _____<br>First Name _____ MI _____  | <b>Person 12</b><br>Last Name (Please print) _____<br>First Name _____ MI _____  |  |

When you are finished, turn the page and continue with the Housing section.