

PROBLEMS WITH DETERMINING AND LISTING GROUP QUARTERS IN PREPARATION FOR ENUMERATION

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A. Introduction

1. Background

As part of the preparations for a decennial census, the U.S. Census Bureau compiles a list of addresses for special places (SPs) and their group quarters (GQs) and obtains additional information about the facility in order to plan for GQ enumeration. Special places are places that are best defined by examples: colleges and universities, correctional facilities, nursing homes and hospitals. At SPs there are usually places where people live together such as dorms or wards. These living spaces are GQs. Like housing units, GQs are assigned geographic coding¹ and the people living at them are considered in the population counts that determine congressional districting for that area. Because some GQs, such as university dorms or correctional facilities wards, may house large numbers of individuals, their population may be critical for a district. It is important, then, that GQ addresses are accurate and populations allocated correctly.² In addition, the coding of the type of SP/GQ provides the option of looking at census populations by type of special place. It is similarly important that the SP/GQ code be correct.

In previous censuses, group quarters addresses were listed in late fall before Census Day, April 1. The listing was conducted by personal visit, an expensive and time-consuming operation. In 1990 the keying of SP and GQ addresses took longer than planned causing start-up and completion delays for the enumeration operation. In addition, there was confusion among interviewers on how to interpret the census group quarters type categories. As part of their listing job, the interviewers coded the type of GQ based on the respondent's description. For example, some interviewers might interpret an SP/GQ description to identify the place as a rooming house, for others it may be a group home, causing coding to be inconsistent. These inconsistencies and others resulted in unscheduled professional review and computer-programmed

edits (Roberts and Bradley 1991), causing additional delays in the final results of the GQ enumeration.

Early in this decade in planning for Census 2000, staff evaluated the difficulties experienced in the 1990 census and determined that a computer-assisted telephone interview (CATI) from Census Bureau central telephone locations would provide more timely and cost effective processing of the GQ addresses. A CATI instrument would allow for computer entry of the GQ addresses at the actual listing interview instead of having to ship the address record forms to another location to be data-entered. In addition, a CATI operation would allow for centralized control of the operation, better access to assistance in interpreting GQ types, and the inclusion of supplementary information, such as the dates of spring break for colleges and universities, which would aid in scheduling appropriate dates for enumeration. A CATI instrument was developed and used in preparation for the Census Dress Rehearsal (DR).³

2. Questionnaire/Instrument

The 1990 Special Place Prelist Record was the precursor to the DR CATI instrument. It was a paper form for recording the special place type, geographic coding, contact person's name, title and phone number. The form, however, was inappropriate for a CATI environment since it did not contain standardized questions. Interviewers were expected to fill in the various data boxes by providing their own probes. Scripted questions were added to the questionnaire and the form was redesigned for a CATI environment. A paper version of the CATI instrument was used for personal visit (PV) interviews, which were necessary when facilities either would not or could not be interviewed by phone.

This paper describes an assessment of the DR instrument conducted in summer 1997 in conjunction with both the CATI and paper uses of the instrument. It also presents recommendations for changes to two segments of the instrument: 1) the question and response categories used to determine the type of special place or group quarters, and 2) the section designed to obtain the information specific to each group quarters -- critical to the success of the instrument.

¹ "Geographic coding" is a system, either computer or manual, of applying codes to an address. The codes represent the actual geographical location of an address. This coding is integral to the assignment of the persons living at an address to the correct geographical location for final census count tabulation.

² The total GQ population in 1990 was 6.7 million.

³ The Dress Rehearsal (DR) for Census 2000 was a census conducted in three sites, Sacramento, CA, 11 counties in the Columbia, SC area and the Menominee, WI American Indian Reservation. The DR was conducted to practice both enumeration and processing procedures in preparation for Census 2000.

B. Methodology

The instrument assessment was designed to answer two questions:

- Does the respondent understand the questions asked and can he/she answer them appropriately and provide the needed information?
- Are the questions applicable and appropriate for special places and group quarters?

CATI interviews selected for the instrument assessment were conducted at all three DR sites; PV interviews were conducted at the Sacramento and Columbia sites only.

The assessment consisted of reviewing and analyzing the interview conversations captured on audiotapes or summarized from notes taken during 56 selected interviews. We analyzed information from 39 CATI cases and 17 personal visit cases. We specifically selected cases that were from a cross section of special place types: colleges and universities, nursing homes, correctional facilities, juvenile institutions, hotels and motels, shelters, soup kitchens, hospitals, etc. The sample was not selected to be representative of the special place universe. However, we did include more cases for those types of SPs that comprise a larger proportion of the SP universe, e.g., nursing homes and group homes. We felt it was important for census planning purposes that we understand what occurred during interviewing and improve, as necessary, the parts of the instrument that would encompass the largest number of interviews.⁴ Interviewers requested permission to tape before conducting the interviews. If a CATI respondent refused to be taped, a replacement case of the same special place type was used as much as possible.

PV interviews served two purposes: one, to collect data for the GQ enumeration, and two, to collect additional information from the respondent regarding survey questions, concepts, and response options, as well as any difficulty the respondent had answer the survey questions. The CATI interviews collected data for the GQ enumeration only. The audiotapes from both types of interviews were transcribed into verbatim scripts. Researchers compiled summaries of these transcripts and analyzed the results. The researchers also analyzed notes from PV cases that refused to be taped and from monitoring untaped CATI interviews.

C. Results of and recommendations from the instrument assessment

The instrument assessment findings provided many insights into possible ways that the instrument and the GQ operation itself might be improved. In this paper we will

⁴The instrument contained 17 sections that were specific to the various SP types. The distribution of the 56 sample cases across these sections resulted in a limited number of cases for assessing a section and recommending changes to it.

concentrate on the findings for two critical segments of the instrument and the recommendations for improving them.

The first critical segment is the item used to determine the SP/GQ type. The answer to this item determines which path the remainder of the interview follows. In addition, this question provides the code used to sort the data for tabulating the census populations of the various SP/GQ types. The second critical piece we chose is the question layout for collecting the GQ addresses and associated information needed for GQ enumeration planning.

1. SP Facility Questionnaire type coding question

The DR instrument included the following question to determine the SP/GQ type (italicized words are read to the respondent; capital letters are instructions to the interviewer; bolded words are the cues to the interviewer that she had to read the entire list):

*These next questions will help me to determine how best to classify your facility. **I'm going to read a list of facilities where people often live. Please tell me which category describes your facility.***

Is this facility primarily a ... (READ ALL CATEGORIES UNTIL YOU RECEIVE A RESPONSE.)

-1- College/university with dormitories

-2- Emergency shelter/soup kitchen or other service

.
.
.

-17- Other living situations, such as YMCAs or hostels

Based on the name of the facility (provided earlier in the survey), the interviewer had the option to read the special place category that he/she thought reflected the most likely category. The question wording, however, encouraged interviewers to read the entire list rather than select a likely category, and, based on our review, this is in fact what usually happened (see Attachment A, left-hand column for complete list). Reading the list was tedious and time consuming, especially over the telephone and for facilities at the end of the list, such as correctional institutions and hospitals. In most cases, places such as these should have been easily coded and the reading of the list unnecessary for them.

Based on review of the taped interviews, respondents provided correct data in response to this question 93 percent of the time. Although this measure alone would make it appear that the question works well, the taped interviews indicated that the respondent and the interviewer spent extensive time negotiating this item. Reading the list was long, tedious and, at times, ludicrous because the respondent had already provided the interviewer with sufficient information to choose a likely SP category to confirm with the respondent; thus, the interviewer spent significant time reading SP categories that were clearly inappropriate based on information obtained

earlier in the interview, and the respondent spent time confirming that they, in fact, were not that SP type.

Our suggested revision allows the respondent to describe the facility so that the interviewer can make a reasonable choice of the facility type (see Attachment A, right-hand column for complete list of response options). The script then guides the interviewer to verify the choice with the respondent. (Italicized words are read; normal printed words contain instructions to the interviewer.)

The next questions will help me place your facility in a category for our questionnaire. Please tell me what kind of facility or what kind of services _____(facility name) provides.
[Listen for types of facilities.]

[If the category is clear from the description provided by the respondent, select a facility from a type screen and verify with this question:]

Your facility is a _____ then?

[If respondent agrees, select that choice and continue. If the R. does not agree, read choices from other screens that seem to match the facility described; OR, if you are not sure of the category based on the description of services, read:]

I am going to read some types of facilities. Please choose the one that most closely matches yours. [Read choices from likely screens and select the one that the respondent approves.]

- *Nursing home?*
- *Continuing care retirement or life care facility?*
- Or other screen list that seems to match what the respondent has described.

This new approach accomplishes two goals that the 1997 instrument did not: (1) the respondent describes the facility in language that he/she normally uses. He/she is not trying to force the definition of the facility into the terminology that the Census uses — at least not until he/she has had input into the choice. (2) The change expedites the interview because the long list is not read unnecessarily.

In addition, the revised item incorporates visual and organizational elements that we believe will allow the interviewer to locate the appropriate categories on the screen more easily. First, SP types are clustered into groups of like places, and the clusters of like places are emphasized by background shading making them easy to locate by skimming down the list. For example, YMCA's and hostels are included in the cluster with hotels, since the facilities serve similar purposes. Second, the list is organized (generally) from the most common to the least common types of special places. For instance, nursing homes, continuing care retirement

facilities and hospices are clustered together since they are similar in their nature. They are also a very frequently reported type of special place and so are located at the beginning of the list of types instead of toward the end of the list, as they were in the 1997 version. Third, rather than embed multiple categories within one SP type, the revised item lists SP types on separate lines within the clusters so that all categories are left justified. For instance, hotel, motel, and single room occupancy facilities are broken out to make the words easier to find for the interviewer, rather than lumped into one line as on the 1997 DR instrument. Fourth, we added categories that we heard respondents use frequently in descriptions of their facilities. For example, we included the category "continuing care retirement or life care facility" to the cluster containing "nursing homes" and "hospices." Taped interviews indicated that respondents at such places identify themselves by this name and not by "nursing home." Having the new choice on the CATI screen eliminates the need for the interviewer to translate the stated choice "continuing care..." to a Census Bureau choice "nursing home," making the task easier for him/her. If data users have no use for the distinction between the categories, then they can be collapsed before data analysis. We believe these changes will help streamline this item. Respondents will use their own terminology to describe their facility. Interviewers will select the most likely choice to confirm with the respondent. Visual and organizational elements should make locating the proper SP type easier for the interviewer: frequent choices are at the beginning of the list, SP types are organized within clusters of similar items, categories are clearly displayed and no longer embedded within a larger category, and categories names reflect respondents' terminology.

2. Layout for GQ addresses and associated information

The GQ enumeration depends on a correct and thorough list of the GQ addresses in order for the operation to be a success. It is also necessary that the associated information, such as the expected population on April 1, be available to the census offices so that they can prepare materials for the enumeration in advance of census time.

The 1997 version of the instrument is shown at the top of Attachment B. The form required that each GQ be listed on a separate page with the information on its associated population. Thus, the interview was intended to proceed so that information for each GQ within an SP was obtained and recorded before proceeding to collect information about the next GQ in that same SP. Review of taped interviews indicated that facilities with more than one GQ tended to answer using a topic-based approach rather than a GQ-based approach. For example, a respondent answering the question regarding the gender of the residents of the dorms at a university would indicate "X and X2 dorms are women's dorms; Y and Y2 are men's dorms and the remainder house both." The 1997 DR form made recording the same type of information for all dorms at one time difficult. The interviewer could flip through individual dormitory forms to record the gender of the population housed in each, or she could stick with the GQ-based approach and either ask the

population gender question for each facility or attempt to remember the information and verify it with the respondent.

Based on these results, we designed a topic-based instrument using a grid format. The bottom of Attachment B is an example of the recommended section for collecting the details about a college dorm. The dorm-gender question is item 2. The entire question would be asked for the first dorm. Then, immediately for the second dorm, the question would be asked as: "How about X2?" And, for the third and subsequent dorms, the questions, as needed, would be: "And Y?", "And Y2?" Although the scripted questions are for a topic-based approach, the open grid format actually allows respondents to use either a topic-based approach, a GQ-based approach, or a combination of both when answering questions.

We believe that the topic-based approach will improve the flow of the instrument. Moore and Moyer (1998), in research involving the American Community Survey (a survey asking questions about persons in the household), polled CATI interviewers and their respondents regarding their opinions on two styles of question asking. One style was "person-based," a style used when a set of questions is repeated for each person in the household in turn. The other style was "topic-based," used when a topic (usually a question) was asked for each appropriate person in the household before advancing to the next topic. The topic-based style used alternative, abbreviated wording like we are suggesting for the second and subsequent household members. Their findings showed that both interviewers and respondents overwhelmingly preferred the topic-based design. Although our SP/GQ application is for an establishment, review of taped interviews indicated that multi-GQ facilities were reporting "topic-based" on their own. In addition, they collapsed their reporting when they could provide one answer for several GQs. Consequently, we adopted question wording and a table design allowing for open entering of data. Multiple questions are listed in the column headings (top x axis) and multiple GQs are listed in the row headings (y axis), with as many as possibly visible on the screen at one time (retaining the GQ name and address at all times). This multiple question and open grid design allows the interviewer to enter data as they are obtained without having to go back or go forward to past or anticipated questions as the respondent retrieves them from memory. The interviewer can point and click to the appropriate GQ's datum cell without leaving the one screen. This basic design has an advantage for a paper instrument as well. Instead of a page for each GQ in the 1997 design, five GQs' data could be obtained on two facing pages of the proposed form, saving on paper, as well as reducing the questionnaire from an overwhelming 170 pages to a more reasonable 60. As with the SP typing question, this new design of this portion of the instrument engages the respondent, using his/her normal reporting technique.

D. Conclusion and future research

Keeping the goals of the research in mind, we have proposed changes to two critical portions of the instrument based on observed problems with a CATI instrument and paper questionnaire that provide GQ information in preparation for

census enumeration. The first recommendation is that extensive lists be modified in lieu of reading them to respondents. We have recommended several methods: allowing the respondent to describe their organization making it easier for the interviewer to choose a likely category; grouping like categories together and on the computer screen at one time so that similar types of places can be found together, and listing the categories with the most likely categories to be contacted listed first. Our second recommendation is an open grid design with alternative wording for the collection of the actual GQ addresses and associated information. When the facilities have multiple GQs they often provide answers for the same topic for all their GQs. We have followed this answering pattern by allowing interviewers to ask the topic question in full, followed by the alternative wordings for subsequent GQs. The grid design offers the interviewer the flexibility to complete data cells as answers are provided by the respondent, even if they are provided out of the normal flow of the question string.

We have not tested our recommended revisions. We recommend that this be the next phase of the research and that this be accomplished during another round of cognitive interviews and not during actual data collection so that any additional changes to the design could be incorporated before census or survey use. In addition, we recommend a comparison study be undertaken that will measure alternative CATI designing software performance using our alternative wording and open grid design. The packages should be compared on difficulty of programming, length of time of programming, flexibility for making changes to the instrument, usability of the instrument by interviewers, speed of screen changes, and cost.

Endnotes

1. This paper reports the results of research and analysis undertaken by Census Bureau staff. It has undergone a more limited review than official Census Bureau publications. This report is released to inform interested parties of research and to encourage discussion.
2. The authors wish to thank Jeffrey C. Moore for his guidance, editorial finesse and encouragement during this research and its publication.

Bibliography

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SP TYPE SELECTION ITEM:
DRESS REHEARSAL INSTRUMENT RESPONSE
 CATEGORIES

- 1_ College/university with dormitories
- 2_ Emergency shelter/soup kitchen or other service for the needy or for people without a home
- 3_ Dormitory for workers
- 4_ Job corps/vocational training facility
- 5_ Convent, rectory, or monastery
- 6_ Rooming and boarding house
- 7_ Group home/halfway house (not operated for correctional purposes)
- 8_ Hotel/motel/single room occupancy
- 9_ Transient location, such as an RV park, race track, marina, public or commercial campground, or carnival
- 10_ Correctional institution intended for adults 18 and over, but also may include juveniles. This group also includes halfway houses operated for correctional purposes.
- 11_ Juvenile institution intended for people under 18 years old, but may also include people 18 and over
- 12_ Hospital, institution, or school for people with mental or physical impairments
- 13_ Nursing home, including long-term care facilities, rooms in wards, or buildings on grounds of hospitals
- 14_ Hospice or home for the chronically ill
- 15_ Other living situations, such as YMCAs and hostels

SP TYPE SELECTION ITEM:
RECOMMENDED INSTRUMENT RESPONSE
 CATEGORIES

- Nursing home? .
- Continuing care retirement or life care facility?
- Hospice?
- Group home?
- Halfway house?
- Residential care facility?
- Rooming house?
- Boarding House?
- Hotel?
- Motel?
- Bed and breakfast?
- Hostel? (Sometimes called Youth hostel or Elder hostel.)
- YMCA or YWCA?
- Is your facility referred to as an "SRO," "single room occupancy," facility? (An SRO is usually a LOW-RENT hotel or motel w/...)
- RV park? (A park where recreational vehicles can be parked...)
- Race track?
- Marina?
- Public or commercial campground?
- Carnival?
- College or university?
- Juvenile institution? (A juvenile is usually a person 18 or younger...)
- Correctional institution for adults?
- Hospital?
- Institution for people with mental or physical impairments?
- School for people with mental or physical impairments?
- Job corps?
- Vocational training facility?
- Workers dormitory?
- Rectory?
- Convent?
- Monastery?
- Other living situations?

Dress Rehearsal Individual GQ data page: I need some additional information for (each of) the building(s) and/or dormitory(ies) we have talked about. **(COPY BLDG NAME/HOUSE NUMBER FROM INFORMATION GIVEN IN Q1.3)**

1.4a	BLDG/ DORM NAME	HOUSE NO./STREET NAME (OR PHYSICAL LOCATION)	CITY	STATE	ZIP CODE	GQ CODE
1.4b	Does (BUILDING/DORM NAME) house males only, females only, or both?				1 __ M 2 __ F 3 __ Both	
1.4c	What is the maximum number of residents that can stay at (BLDG/DORM NAME) ?				_____	
1.4d	How many residents do you expect to have in October 1996?				_____	
1.4e	What is the name and telephone number for the person we should contact at (BUILDING/DORM NAME) ? (NAME) _____ (TELEPHONE NO) _____					
1.4f	Does (BUILDING/DORM NAME) provide SEPARATE apartments or units where people, such as dorm directors or house-parents, live? 1 __ Yes (CONTINUE) 2 __ No (SKIP TO ...)					
1.4g	What is the address for each of these units?					
	HOUSE NO./STREET NAME (OR PHYSICAL LOCATION)		CITY	STATE	ZIP CODE	
	1					
	2					

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Recommended Instrument GQ Listing and data page (This example contains "College dormitory" wording, e.g., "students." We would substitute words like "inmates," "patients," "guests," etc., as appropriate. Although only two GQs are shown, we would recommend at least five per page.)

GQ #	1. What are the names and addresses of the bldgs, dormitories or other separate areas where students are housed at this facility?(OR: Are there any addnl. bldgs where students are housed at this facility?) GQ Name Address		2. Does GQ house males only, females only or both: [How about...?] [And...?]	3. What is the licensed occupancy...	4. How many students do you expect....	5. Who is the person to contact regarding [GQ name] and what is their phone number? [How about...?] [And...?]	6. Are there separate apts. or units where staff may live at [GQ name]?
1	Bldg/Dorm Unit Name	Street Address City State Zip Code:	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Both	Number	Number	Name <input type="checkbox"/> Same as facility contact Phone No.	<input type="checkbox"/> Yes--Go to Sect. _ then return here for the next GQ, if any; if no addnl. GQs, go to Sect. _ and then to Y. <input type="checkbox"/> No--Ask for next GQ or, if no addnl. GQs, go to Section Y.
2	Bldg/Dorm Unit Name	Street Address City State Zip Code:	<input type="checkbox"/> Male <input type="checkbox"/> Female <input type="checkbox"/> Both	Number	Number	Name <input type="checkbox"/> Same as GQ Phone No.	<input type="checkbox"/> Yes--Go to Sect. _ then return here for the next GQ, if any; if no addnl. GQs go to Sect. _ and then to Y. <input type="checkbox"/> No--Ask for next GQ or, if no addnl. GQs, go to Sect. Y.