

Cognitive Interview Findings for Items to Measure Certifications, Licenses, and Educational Certificates Among Adults in the United States

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Introduction

Beginning in January 2015, the National Household Education Survey (NHES) is expected to field the first full-scale administration of the Adult Training and Education Survey (ATES). The American Institutes for Research (AIR) is working with the National Center for Education Statistics (NCES) to develop a government strategy for measuring the prevalence of subbaccalaureate credentials—in particular, industry-recognized certifications, licenses, and educational certificates—in the United States. AIR is conducting a multiphase research effort to develop and test questions that will be included in the ATES survey. In Phase I, AIR contracted with Shugoll Research to conduct focus groups and cognitive interviews with respondents holding less than a bachelor’s degree who work in fields that may offer subbaccalaureate opportunities. In Phase II, the Center for Survey Methods at AIR designed and conducted cognitive interviews of potential survey items that may be used to measure certifications and licenses.

This report documents the key findings from the cognitive interviews conducted in Phase II for the study.

Methodology

AIR conducted a total of 30 cognitive interviews between August 6, 2013, and September 4, 2013. The interviews were conducted in five rounds, all in English. Respondents were required to either have a professional certification, an educational certificate, or other work-related training. All interviews were conducted in person at the Shugoll Research facility in Bethesda, Maryland. The respondents were selected so that there would be a mix of the following characteristics: gender, race and ethnicity; public and private sector employment; and field of work (including technology, health care, business, construction and “other”).

Respondents were recruited by telephone from a database maintained by Shugoll Research. Each prospective respondent was screened using a recruitment screener (see appendix). If they were qualified, respondents were offered a \$45 honorarium as an incentive to participate in the cognitive interviews.

The interviews were conducted by interviewers who received training in the cognitive interview technique by a senior researcher at AIR. The interviewers used a topic guide developed by AIR to ensure that all objectives of the study were. Researchers from AIR, NCES, and other federal statistical agencies listened to some of the interviews and provided guidance and feedback throughout the study.

The interviews were conducted using “concurrent probing,” a technique in which interviewers asked respondents to “think aloud” as they answered the survey questions. (Before the interviews, respondents were given instructions about what the “think aloud” task required of them and were provided an example to practice thinking aloud by the interviewer.) The interviews were recorded, and notes for each interview were written within 24 hours of the interviews’ completion.

All data were analyzed using NVivo qualitative analysis software. Where appropriate, the findings are supported by examples taken from the interviewers’ notes.

Limitations

Cognitive interviewing as a qualitative research methodology has limitations. First, only a small number of purposively selected respondents are interviewed and the results are not generalizable to a larger population. In other words, the nonstatistical nature of qualitative research means that the results cannot be generalized to the population under study with a known level of statistical precision. The second limitation arises from the first one; the small number of respondents often leaves the questionnaire's less common paths or skip patterns untested (DeMaio et al. 1993; Hess and Singer 1995). Third, the method of cognitive interviewing can vary widely. This limitation was dealt with in this study by training interviewers to use the same technique and by using a data management system for the notes written after each of the interviews.

Key Findings

The key findings from the cognitive interviews indicate the following problems with the survey items: (1) confusing skip patterns; (2) difficulty with grids and tables; (3) complex main certificate item; and (4) overall survey burden. These problems were addressed during the iterative rounds of testing, making changes to items during testing to address these issues. We include examples of these changes in this report.

Confusing Skip Patterns

The cognitive interviews showed that some respondents missed skip instructions, while others skipped items that they should have answered. To address these problems, the AIR team changed the ordering of response options to match the 2012 National Household Education Surveys Program (NHES:2012) format, where, whenever possible, the skip instruction flows from the first response option and an arrow directs non skipping respondents to the next item. The team also revised the formatting of the instructions to make them consistent and distinguishable from the item text. Lastly, the team reordered several questions to reduce the number of skips and to favor errors of commission over errors of omission.

Difficulty With Skip Patterns

Skip patterns were a challenge to a number of respondents. More problematic is that although the respondent was clearly not eligible to answer the following question he/she answered the question regardless. For instance, in Question 2, on respondent's major or field of study, respondents were required to refer to a table on the following page. In the first version of the questionnaire (used in rounds 1–3 of the cognitive interview testing), 4 of 4 respondents missed the skip instruction on Question 1 and answered Question 2, creating a variety of response errors. (See table 1.) In round 4, the text of Question 2 was changed slightly, but this did not prove to clarify the question to those who were not eligible to answer. On the contrary, 5 of 8 respondents answered this question with some response error. In round 5, the question was shortened and the reference to the table moved to the beginning of the question. This change provided positive results, with no respondents answering this question incorrectly.

Table 1. Three versions of the “major or field of study” question, by number and type of respondent errors

	A: V1-V3. What was the major or field of study for your highest level of education? If there was more than one, please choose the one you consider most important. Write in the number corresponding to your field of study.	B:V4. What was the major field of study for your highest level of education?	C: V5. Using Table A on page 5. what was the major or field of study for your highest level of education? If there was more than one, please choose the one you consider most important.
Skip pattern			
No problem	0	0	0
Yes had problem	1	0	0
Interviewer error	0	0	0
NA – did skip appropriately so Q was not asked	3	2	1
Response error			
Wrong answer	0	0	0
Marked more than one	0	0	0
Respondent answered the question when he/she should have skipped	4	5	0
Tables			
Problem using number in table to answer question	1	0	0
Format confusion	2	0	0
Instructions			
Had to re-read	2	0	1
Question clarification – asked questions	1	0	0

Difficulty With Grids and Tables

The amount of text in the grids and their size created difficulties for respondents. The amount of back-and-forth between the grid and the tables that was necessary to complete the grids also appeared to be problematic. For the “work-related certification and license” question, three versions of the grid were used during the cognitive interviews. (See table 2.) In the first version, respondents had trouble following the instructions to fill the grid.

The number of columns in the grid also confused respondents. Four respondents used the wrong table and went back to table 1 to fill in the answer to this question. The format also appeared to confuse respondents; the respondent below had trouble both with the format and with understanding the instructions:

R said it is a terrible format and not easy on the eye. He almost skipped over the chart because he didn't like it. He thought it'd be better to just write "education" instead of using the table.

When probed about the grid again and if he noticed anything after looking at [the grid] again, he said the first time he saw this page, he re-read the question several times to understand what it is asking.

Table 2. Three versions of the "certification and license" grid and table, by number and type of respondent errors

	A: Version 1-3. Please fill out each row in the following grid for each work-related certification and license you have, up to five. If you hold more than five, fill out the grid for the five you earned most recently.	B:Version 4. Please fill out each row in the following grid for each work-related certification and license you have up to three. If you hold more than three, fill out the grid for the three you earned most recently.	C: Version 5. Please fill out each column in the following grid for each work-related certification and license you have, up to three. If you have more than three, answer for the three you last earned or renewed.
Skip problems	5	0	0
Problems			
Use of table number to fill response	2	0	0
Too many columns confused respondent	5	2	0
Categories in table didn't fit respondent's experience	6	0	0
Confusion over which table to use	4	0	0
Negative reaction	2	1	3
Format confusion	4	2	1
Instructions			
Had to re-read	4	2	2
Question clarification – asked questions	1	1	0

To address these problems, in rounds 4 and 5, we simplified the text in the grid and reduced the number of certifications and licenses asked about from five to three. Another change that we made was to reformat the grid from a landscape to a portrait layout (i.e., the column/row order was reversed). Between rounds 3 and 4, we also reduced the number of, and level of detail in, the categories in Table 2 (Field of Certification or License Codes). In the first three rounds of

cognitive testing (when the more detailed table was used), 6 respondents reported that the categories did not fit their license or certification. Once the table was simplified, this problem was eliminated.

There are two areas in which the changes that we made to the grid and table in this question did not have as much impact as expected. First, respondents continued to have a negative reaction upon seeing the grid and table for the first time. One respondent expressed it in the following way:

When asked what R thought when he first saw this grid, he said it was daunting at first, but it was actually easier than he thought as he went line by line.

The format that requires two pages, one with a table and another with a grid, seemed to be the major challenge for at least 4 respondents. For example:

When she first saw [the question] she said it looked more tedious than it actually was. This was because the question is too wordy; there are a lot of words on the page.

A second area in which the improvements that we made did not alleviate all of the problems was in the instructions for the “certification and license” grid and table. In rounds 1–3, 5 respondents had some trouble understanding the instructions or had to reread the instructions once they had started filling in the grid. In round 4, this was less of a problem; nevertheless, in round 5, 2 respondents still reported having to reread the instructions to understand the task.

In summary, in the certification and license grids, we reduced the number of certifications and trainings that were asked about. We simplified the text in the grids, deleted some grid questions, and reversed the column/row order. We shortened the table look-up categories and reformatted the layout so that it is easier to reference the table.

Difficulty With the Main Educational Certificate Item

The main “educational certificate” item was too complex and wordy; the use of “vocational” and “course of study,” in particular, were confusing to some respondents. This question went through four versions in the five rounds of cognitive testing. The terminology in this question seemed to create the biggest problems. For instance, the respondent below was confused by what was meant by the term “certificate:

R was confused about this question. At first, he filled out that he had a certificate, and then he turned to Q16 and asked if Q15 means a degree or certification for licensure. When he read the question again, he noticed it said *rather than a degree*. He changed his answer from Yes to No. He was earning a special education certificate while completing his masters and didn’t think that counted. I probed him about whether he would count his special ed certificate if it was not part of his masters and he said he might have, but he wasn’t sure. I said it was up to him how he wanted to answer the question and when he flipped over to the chart/grid, he decided he wanted to say No so he didn’t have to fill out the chart.

Even after reading the question twice, this respondent was not sure what was meant by the term “certificate.” Other respondents were similarly confused. For example, the following respondent

answered positively, although he did not have a certificate as defined by the questionnaire. During probing, the respondent explained that he answered “yes” because he interpreted that the certificate of completion for a course he had taken fit the definition of “certificate” in the question:

Respondent had taken a class and received a certificate of completion. He was unsure if this fit in to the category of educational certificate because it was a course and not a program of study; therefore he referred to question 14. After looking at question 14 he decided that his course fit the description and marked yes.

The length of the “educational certificate” question was also a problem for some respondents. The question also contains a time frame reference “After high school” which later on in the question is worded differently and referred to as “Since leaving high school” causing confusion for respondent. In addition the question several terms such as: program of study, vocational or trade school, community or technical college, technical institute, educational certificate that some respondents found confusing.

In the final version of this question (tested in round 5), the language was simplified. It now tests at a 12th-grade reading level and reads as follows:



Overall Survey Burden

Across the survey, the meaning of the term “most recent” was confusing. Some respondents interpreted “most recent” to mean “recently” (e.g., in the last 6 months). For example, one respondent said the following:

R1: Says “most recently” means within the last few weeks or months, definitely less than six months.

Changing the language to “most recently” seemed to compound the problem. Respondents interpreted “most recently” as relating to qualifications that apply to their current job, referring to a time frame of the past 6 months:

R1: Says “most recent” means the job you do now.

R2: [Respondent] was interpreting the “most recently” in the question as certificates that apply to her current career. Because these do not apply, she would have left it blank.

R3: She was interpreting the “most recently” in the question as certificates that apply to her current career.

During the last round of cognitive testing, we changed the wording to refer to the “last” credential earned, which reduced some of these interpretation problems.

Another overall survey burden occurred as a result of respondents skimming or skipping instructions at the beginning of the survey or within items. The example below illustrates skimming of the instructions within items and some of the reasons why respondents did this.

11. What kind of courses, training, or instruction (online or in-person) did you take in order to prepare to earn your most recent work-related certification or license? (Mark all that apply.)

While reading this question aloud R says “ya da ya da ya da.” When asked what that meant she said it was because she didn’t want to read it all because it was easy to pick which one pertained to her. Respondent explained that this question was asking whether courses were taken online or if you had to go somewhere to take them.

In this question, the respondent is asked about coursework taken to prepare for a certification or license. Because the respondent skimmed the question, it appears that she did not understand its intent and, as a result, responded incorrectly. When asked why she skimmed the question, the respondent explained that there was too much text on the page; other respondents also reported the same problem. In response, we simplified the wording in the questions and skip instructions as much as possible and made some changes to the format. For example, rather than repeat “this certification or license” in each follow-up question, we repeated it only in the first one or two follow-up questions and then referred to the credential as “it” or “this” in the remainder of the section (for example see version 5 of the questionnaire, Question 6, 6a-6f). These changes are expected to alleviate some of these problems.

Summary

AIR conducted five rounds of cognitive interviews to test questions for their potential to measure the prevalence of subbaccalaureate credentials in the post-high school population in the United States. During the cognitive testing, the AIR team found that respondents had problems following skip patterns, had a hard time with the overall survey burden and wording of questions, and had difficulty with the main educational certificate item. To address these problems, the questions were simplified, skip patterns streamlined, and language modified to meet the needs of the population.

References

DeMaio, T.J., Mathiowetz, N., Rothgeb, J., Beach, M.E., and Durant, S. (1993). *Protocol for Pretesting Demographic Surveys at the Census Bureau*. Paper presented at the Proceedings of the Section on Survey Research Methods, American Statistical Association, Alexandria, VA.

Hess, J., and Singer, E. (1995). *The Role Of Respondent Debriefing Questions in Questionnaire Development*. Paper presented at the Survey Research Methods Section, American Statistical Association, Washington, DC.

Appendix

NHES RECRUITMENT SCREENERS
Draft July 16, 2013

Adult Training and Education Survey (ATES)

Hello, this is _____ calling from Shugoll Research, an independent survey research company. May I please speak with _____? We are conducting a very brief survey with DC area residents and we'd like to include your opinions. This is strictly market research and absolutely no sales or fundraising effort is involved. I'd like to ask you a few questions.

1. First, which of the following categories includes your age? (READ LIST)
 - a. Under 18 (THANK AND TERMINATE)
 - b. 18 to 24 (CONTINUE; RECRUIT A MIX OF AGES)
 - c. 25 to 34 (CONTINUE; RECRUIT A MIX OF AGES)
 - d. 35 to 44 (CONTINUE; RECRUIT A MIX OF AGES)
 - e. 45 or older (CONTINUE; RECRUIT A MIX OF AGES)
 - f. (DO NOT READ) Refused (THANK AND TERMINATE)

2. What is the highest degree or level of school you have completed? (DO NOT READ RESPONSE OPTIONS; RECRUIT A MIX WITH AT LEAST 3/4 HAVING LESS THAN A BACHELOR'S DEGREE)
 - a. Less than high school
 - b. High school graduate
 - c. Some college, trade, technical or vocational school
 - d. Bachelor's degree
 - e. Graduate education
 - f. Refused (THANK AND TERMINATE)

3. Which of the following best describes your employment status? (READ LIST)
 - a. Working full time (CONTINUE)
 - b. Working part time (CONTINUE)
 - c. Full time student (THANK AND TERMINATE)
 - d. Retired (THANK AND TERMINATE)
 - e. Not currently employed but looking for work (RECRUIT 2-4; GO TO Q5)
 - f. (DO NOT READ) Don't know / Refused (THANK AND TERMINATE)

4. Are you self-employed?
 - a. Yes (RECRUIT 2-4; GO TO INSTRUCTIONS)
 - b. No (CONTINUE)
 - c. Don't know / Refused (CONTINUE)

5. Are you employed [IF UNEMPLOYED: Was your most recent job] in the civilian Federal government?
 - a. Yes (RECRUIT NO MORE THAN 5; CONTINUE TO INSTRUCTIONS)
 - b. No (CONTINUE TO INSTRUCTIONS)
 - c. Don't know/ Refused (THANK AND TERMINATE)

INSTRUCTIONS: FOR AT LEAST 5 RECRUITED PARTICIPANTS, GO TO Q16 (DO NOT ASK ABOUT CREDENTIALS). FOR ALL OTHER PARTICIPANTS GO TO Q6.

6. Have you participated in any work related training in the past 12 months? Work related training includes courses taken for continuing education credit or to remain in your current field of work. It also includes apprenticeships, internships and externships. Occupational seminars and workshops are another example of work related training you may have participated in. The work related training may have been provided by your employer or from a professional or trade association, a school, a community group or other organization.
 - a. Yes (RECRUIT AT LEAST 9 – AT LEAST 1 OF WHOM SHOULD BE SELF-EMPLOYED; CONTINUE)
 - b. No (GO TO Q8)

- c. Don't know / Refuse (GO TO Q8)
7. Do you currently work, or any time in the past 12 months have you worked, in any of the following occupations? (READ LIST; RECRUIT AT LEAST 6, A MIX, FROM A-E; CONTINUE)
- a. IT (READ ONLY IF NECESSARY: i.e., Computer support specialist, computer systems analyst, software development, etc.)
 - b. Health care (READ ONLY IF NECESSARY: i.e., licensed practical nurse, registered nurse, health technician, etc.)
 - c. Construction or skilled trades (READ ONLY IF NECESSARY: i.e., construction project management, carpenter, plumber, mechanic, etc.)
 - d. Teaching (READ ONLY IF NECESSARY: i.e., elementary, middle, or secondary teacher, teacher assistant, etc.)
 - e. Finance or accounting (READ ONLY IF NECESSARY: i.e., accounting or auditing clerk, personal financial advisor, financial analyst, etc.)
 - f. (DO NOT READ) Other
 - g. (DO NOT READ) Don't know / Refused
8. Do you have a professional certification or license such as a PMP certification, Registered Nurse, or Certified Technician?
- a. Yes (RECRUIT AT LEAST 9 – AT LEAST ONE OF WHOM SHOULD BE SELF-EMPLOYED; CONTINUE)
 - b. No (GO TO Q11)
 - c. Don't know / Refused (GO TO Q11)
9. How many certifications licenses do you have? (DO NOT READ LIST)
- a. One (CONTINUE)
 - b. More than one (RECRUIT AT LEAST 3; CONTINUE)
 - c. Don't know / Refused (CONTINUE)
10. Do you have a certification or license in any of the following fields? (READ LIST; RECRUIT AT LEAST 6, A MIX, FROM A-C; CONTINUE)
- a. Technology (READ ONLY IF NECESSARY: i.e., system administrator, network professional/architect, IT professional, enterprise developer, etc.)
 - b. Health care (READ ONLY IF NECESSARY: i.e., nursing, case management, occupational/physical therapy, social work, counselor, etc.)
 - c. Construction (READ ONLY IF NECESSARY: i.e., construction project management, construction safety, contracting, etc.)
 - d. (DO NOT READ) Other
 - e. Don't know / Refused
11. Have you ever completed a program of study at a college or trade school to earn an educational certificate?
- a. Yes (CONTINUE; RECRUIT AT LEAST 9 – AT LEAST 6 OF WHOM HAVE LESS THAN A BACHELOR'S DEGREE)
 - b. No (GO TO Q13)
 - c. Don't know / Refused (GO TO Q13)
12. How many certificates have you earned? (DO NOT READ LIST)
- a. One (CONTINUE)
 - b. More than one (RECRUIT AT LEAST 3; CONTINUE)
 - c. Don't know / Refused (CONTINUE)
13. In the past 12 months, did you take any classes to learn English as a second language?
- a. Yes (RECRUIT AT LEAST 2; CONTINUE)
 - b. No (CONTINUE)

c. Don't know / Refused (CONTINUE)

14. [IF Q3 = LESS THAN BACHELOR'S DEGREE] In the past 12 months, did you take any classes to prepare to take the General Educational Development (GED) test, or as part of some other high school equivalency program or adult high school program?

- a. Yes (RECRUIT AT LEAST 2; CONTINUE)
- b. No (CONTINUE)
- c. Don't know / Refused (CONTINUE)
- d. Not applicable (less than Bachelor's degree) (CONTINUE)

15. In the past 12 months, have you taken any other classes from a vocational or trade school, community or technical college, technical institute, or other college or university?

- a. Yes (RECRUIT AT LEAST 4; CONTINUE TO INSTRUCTIONS)
- b. No (CONTINUE TO INSTRUCTIONS)
- c. Don't know / Refused (CONTINUE TO INSTRUCTIONS)

INSTRUCTIONS: KEEPING RECRUITMENT QUOTAS IN MIND, IF YES TO AT LEAST ONE OF THE FOLLOWING [Q6, Q8, Q11, Q13, Q14, Q15], CONTINUE TO Q16. OTHERWISE, THANK AND TERMINATE.

16. Have you participated in a cognitive study or focus group in the past 12 months?

- a. Yes (THANK AND TERMINATE)
- b. No (CONTINUE)
- c. Don't know / Refused (THANK AND TERMINATE)

17. Do you work for Shugoll, the American Institutes for Research, or the U. S. Department of Education?

- a. Yes (THANK AND TERMINATE)
- b. No (CONTINUE)
- c. Don't know / Refused (THANK AND TERMINATE)

18. RECRUITER: INDICATE GENDER

- a. Male
- b. Female

Based on your answers, we would like to invite you to participate in an additional interview (to discuss your education and job training experiences). You will receive an honorarium of (\$45) for participating in the interview. The interview is about 1 hour in length and will be conducted at our office located in Bethesda.

If you drive, please park in our garage in the Bethesda Crescent building and bring your ticket with you for validation. We will pay for your parking.

We are conducting interviews on _____ and _____. Are you available to participate in this research study?

CIRCLE

- Yes 1 → (CONTINUE AND GIVE DIRECTIONS)
- No 2 → (THANK AND TERMINATE)