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ABSTRACT

The National Household Education Survey (NHES) is a data collection system of the National Center for Education Statistics (NCES) designed to address a wide range of education-related issues. It is a telephone survey of the noninstitutionalized civilian population. In 1995, the NHES included a survey of adult education (AE). This report deals with response bias in the AE component of the NHES. To estimate response bias for the AE, an intensive reinterview was conducted with a sample of respondents and the responses to this reinterview were compared with the original values to estimate response bias. Interviewers were not chosen from the regular pool of NHES interviewers, but were people with previous experience in less structured interviews. An interview protocol was developed for the reinterview. Of 230 cases sampled for the bias study, 206 respondents completed intensive reinterviews. The estimated bias in the overall participation rate of adults was 24%, and the bias-corrected estimate is that 64% of adults participated in AE in 1995, a figure considerably larger than the 40% reported in the NHES:95. Under-reporting may have resulted from a lack of understanding related to the less formal forms of adult education. The under-reporting of participation for work-related and personal development courses was substantial. Consistency problems were identified for items dealing with barriers to participation in adult education, but the reinterview program did not lead to new ideas to cope with inconsistent reporting (the switching problem) in the NHES:95. The intensive reinterview methodology appeared to have good potential for detecting biases, and it appears that response bias can be estimated using this methodology. (Contains 9 tables and 14 references.) (SLD)

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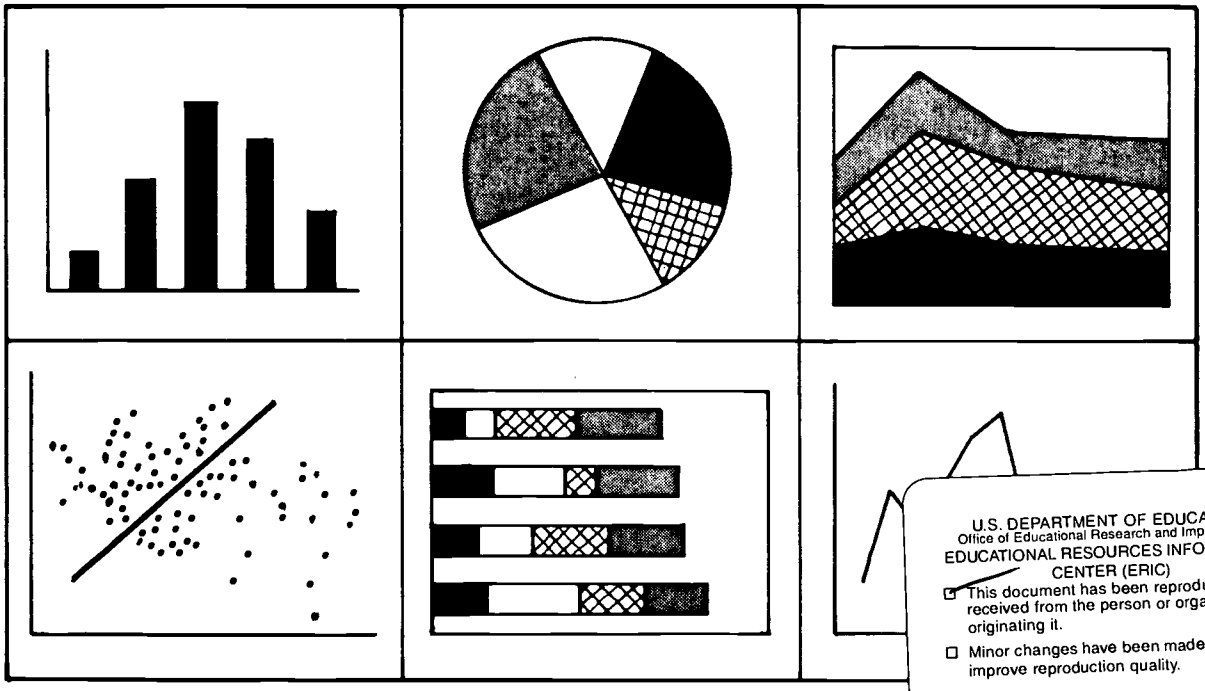
Working Paper Series

Estimation of Response Bias in the NHES:95 Adult Education Survey

Working Paper No. 96-13 June 1996



U.S. Department of Education
Office of Educational Research and Improvement

Estimation of Response Bias in the NHES:95 Adult Education Survey

Working Paper No. 96-13 June 1996

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Foreword

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The ***Working Paper Series*** was created in order to preserve the information contained in these documents and to promote the sharing of valuable work experience and knowledge. However, these documents were prepared under different formats and did not undergo vigorous NCES publication review and editing prior to their inclusion in the series. Consequently, we encourage users of the series to consult the individual authors for citations.

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Estimation of Response Bias

in the NHES:95 Adult Education Survey

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June 1996

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1. Background

The National Household Education Survey (NHES) is a data collection system of the National Center for Education Statistics (NCES) designed to address a wide range of education-related issues. NCES has as its legislative mission the collection and publication of data on the condition of education in the Nation. The NHES is specifically designed to support this mission by providing information on educational issues best addressed by contacting households rather than schools or other educational institutions. The NHES provides descriptive data on the educational activities of the U.S. population and offers policymakers, researchers, and educators a variety of statistics on the condition of education in the U.S.

The NHES is a telephone survey of the noninstitutionalized civilian population of the U.S. Households are selected for the survey using random digit dialing (RDD) methods and data are collected using computer-assisted telephone interviewing (CATI) procedures. Approximately 60,000 households are screened for each administration, and individuals within households who meet predetermined criteria are sampled for more detailed or extended interviews. The data are weighted to permit estimates of the entire population. The NHES survey for a given year typically consists of a screener, which collects household composition and demographic data, and extended interviews on two substantive components addressing education-related topics. In order to assess data item reliability and inform future NHES surveys, each administration also includes a subsample of respondents for a reinterview.[1]

The primary purpose of the NHES is to conduct repeated measurements of the same phenomena at different points in time. Throughout its history, the NHES has repeatedly collected data in ways that permit estimates to be tracked across time. This includes repeating topical components on a rotating basis in order to provide comparative data across survey years. In addition, each administration of the NHES has benefited from experiences with previous cycles, resulting in enhancements to the survey procedures and content. Thus, while the survey affords the opportunity for tracking phenomena across time, it is also dynamic in addressing new issues and including conceptual and methodological refinements.

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[1] See 1995 Adult Education Data File User's Manual for additional information.

A new design feature of the NHES program implemented in the NHES:96 is the collection of demographic and educational information on members of all screened households, rather than just those households potentially eligible for a topical component. In addition, this expanded screening feature includes a brief set of questions on an issue of interest to education program administrators or policymakers. The total screener sample size is sufficient to produce state estimates of household characteristics for the NHES:96.

Full-scale implementations of the NHES have been conducted in 1991, 1993, 1995, and 1996. Topics addressed by the NHES:91 were early childhood education and adult education. The NHES:93 collected information about school readiness and school safety and discipline. The 1991 components were repeated for the NHES:95, addressing early childhood program participation and adult education. Both components underwent substantial redesign to incorporate new issues and develop new measurement approaches. In the NHES:96, the topical components were parent/family involvement in education and civic involvement. In addition, the NHES:96 expanded screening feature included a set of questions on public library use.

In addition to its topical components, the NHES system has also included a number of methodological investigations. These have resulted in technical reports and working papers covering diverse topics such as telephone undercoverage bias, proxy reporting, and sampling methods. This series of technical reports and working papers provides valuable information on ways of improving the NHES.

2. Purpose and Overview

2.1 Response Errors

Estimates from surveys are subject to both variable and systematic nonsampling errors (Groves 1989). Variable nonsampling errors are those that might vary across repeated surveys administered to the same sample, assuming that the conditions of the interview could be controlled so that the surveys were independent. For example, the same respondent might report annual income differently when asked in repetitions of the same survey because the method used by the respondent to

estimate income might vary (records might be used, recall might be used, or the value might be estimated using different schemes). These circumstances would lead to variable errors for estimates of income. This type of error is often called response variance.

Systematic nonsampling errors, on the other hand, are those that have a particular direction. For example, if respondents tend to omit certain types of income, say interest income from savings, then the estimated income would be expected to be lower than the true income. In repetitions of the same survey, the estimated income would always be less than the true income. These types of systematic errors are often called response bias. Survey estimates can be subject to both response variance and response bias.

Reinterviews have been used to estimate the response variance for many estimates in previous NHES surveys (Brick and West 1992; Brick, Rizzo, and Wernimont 1996). A reinterview was also conducted for the Adult Education (AE) component of the NHES:95 for this purpose and the results of the reinterview are contained in a separate working paper (Brick, Wernimont, and Montes 1996). The 1995 AE reinterview is referred to often in this report as the Reinterview Study.

Methods used in the reinterviews, such as selecting interviewers from the original interviewer pool, asking the questions in much the same way as asked in the original interview, not informing the interviewer or the respondent of the answers from the original interview, and waiting at least 14 days between interviews so that the respondent will not remember the details of the original interview are all designed to support the measurement of response variance. Forsman and Schreiner (1991) discuss how these types of procedures can be used to make the reinterview circumstances as similar as possible to those of the original interview.

Measuring response bias is more difficult. One way of measuring response bias is to compare the results of the survey against answers from a more definitive source, such as an administrative record file. This record check or *validation* approach has serious limitations of its own (Groves 1989). For example, record checks can only be used if records exist on the survey topic and those records can be accessed. Another key assumption is that the records are complete and accurate and can be matched to the survey respondents without error. Brick et al. (1994) found that these assumptions did not hold well even for the well-defined topic of teacher certification.

Another way of measuring response bias is through the use of reinterviews. As noted above, reinterviews are ordinarily undertaken to measure response variance rather than response bias. However, sometimes a process called reconciliation is used in reinterviewing to measure bias. If the original and reinterview responses are different, then the respondent is asked to reconcile the differences and the resulting response is called the reconciled response. The reconciliation is often conducted by a supervisor rather than a regular interviewer to make the reconciled response less subject to error. The assumption that a supervisor is more likely to obtain and record the correct response is itself tenuous. Under this assumption, researchers have assumed the reconciled response to be more accurate, and then the difference between the original and reconciled response can be used to estimate response bias (Forsman and Schreiner 1991).

Reconciliation has been used in previous NHES studies to estimate response bias (Brick and West 1992; Brick, Rizzo, and Wernimont 1996), but there is little evidence that it actually measured bias. The interviewers used were regular telephone interviewers and the estimates of response bias based on the reconciled responses were not very different from the responses based on the unreconciled reinterview data. Regardless of how these differences between the reinterview and reconciled reinterview responses are interpreted, the reconciliation produced little additional information. As a result of this, responses for only a few items were reconciled in the Reinterview Study and the goals of the reinterview did not include estimating response bias.

An alternative method was chosen to estimate response bias for the AE component of the NHES:95 and is the basis of this research. An *intensive* reinterview was conducted with a sample of respondents and the responses to this reinterview are compared to the original values to estimate response bias. Throughout this report, this study is called either the Bias Study or the intensive reinterview.

The intensive reinterview for the NHES:95 differed from the Reinterview Study in a number of ways. First, the interviewers were not selected from the pool of regular NHES interviewers, but were persons with previous experience in interviewing using less structured methods. The interviewers were trained to use a protocol and to conduct the reinterviews in a conversational mode, using probes and other devices to trigger recall and comprehension. The reinterview was

focused on a few topics and ample time was allowed for discussing these few points. The respondents were encouraged to voice their opinions and understanding of the topics. Furthermore, attempts were made to engage the respondents in the interview by explicitly asking for their advice on ways to improve the interview. The hope was that these methods would lead to more complete and accurate reporting in the intensive reinterview.

The intensive reinterview method was pioneered by Belson (1986) who focused on difficult or sensitive topics primarily in opinion and marketing research. He proposed and implemented many techniques in his research that are today classified as cognitive methods. In the Teacher Follow-up Survey (TFS) in the Schools and Staffing Survey, an extensive reconciliation was conducted using methods that had some of the same attributes of intensive reinterviews (Jenkins and Wetzel 1994). Their approach involved an extensive, structured reconciliation using supervisors as interviewers to try to identify problem questions and to offer suggestions for improving the questionnaires.

The methods used in the NHES:95 Bias Study are most closely related to those proposed by Belson (1986). Four specific types of issues were identified prior to the study and methods were developed to address these topics, excluding other parts of the AE interview from this study. The methods used in the Bias Study, including training the interviewers, sampling respondents, and conducting the intensive reinterviews, are described in some detail in the following sections after the goals of the intensive reinterview are presented.

2.2 Goals

Four major research objectives were established for the Bias Study. They were:

- To examine the bias in the overall participation rate in adult education activities;
- To examine bias in the estimates of participation in work-related and personal development courses;
- To assess the validity of the responses to the barriers items; and

- To explore reasons for switching participation status between the NHES:95 screener and the AE extended interview.

Each of these objectives is discussed below.

Participation rates. The first goal of the Bias Study was to examine the potential bias due to either underreporting participation or overreporting activities that took place outside of the time frame of the survey (i.e., the past 12 months prior to the original NHES interview). Respondents might underreport participation either because they might not recall a qualifying activity during the 12 months before they were interviewed or because they might not comprehend the range of activities that were included as adult education. These types of underreporting would lead to downward bias in participation rates. However, an upward bias could occur if respondents "telescoped" some activities. Telescoping is reporting activities that took place outside of the time frame of the survey as having taken place within that time frame (Neter and Waksberg 1964). If their only activities were outside of the time frame of the NHES and they were reported as having taken place in the past 12 months prior to the original interview, participation rates would be biased upward. Underreporting was expected to be minimal in all types of adult education (the six types of activities were: English as a Second Language (ESL), adult basic education/GED preparation classes (ABE/GED), credential programs, apprenticeships, work-related courses, and personal development courses), except work-related and personal development courses. As a result, the Bias Study focused solely on these two types of participation in order to assess the bias in the overall participation rate.

Participation rates in work-related and personal development courses. The second goal was to obtain more accurate estimates of participation in work-related and personal development courses, separately. As a result of the differences between the estimates of participation from the NHES:91 and the previous CPS data collections (i.e., Adult Education supplements, 1969-1984), it was suspected that work-related courses and personal development courses were susceptible to underreporting. The cognitive laboratory work on the NHES:95 questionnaire reinforced this impression. One of the major concerns for reporting these types of courses is that respondents might not comprehend the full range of activities that are included as work-related and personal development courses. Some respondents might have their own definitions of adult education that are not consistent with those of the survey. These types of comprehension problems could combine with recall problems and result in underreporting of work-related and personal development courses.

Barriers to participation. The responses to the barriers questions, in particular those asked of low-education (i.e., less than a high school diploma or GED) nonparticipants, are important from a policy perspective, but concerns about the validity of these items were raised during the design phase of the survey. Nonparticipants were asked several questions related to their not having participated in ESL, ABE/GED, or work-related courses. They were asked whether they were interested in participating in adult education activities, and, if they were, whether they knew about activities in which they could participate. Those who were interested and knew about activities were asked whether time, money or cost, child care, transportation, or any other barrier had prevented them from participating. In order to assess the efficacy of the barriers items in the NHES:95 interview, the Bias Study further investigated the barriers to participation in ESL, ABE/GED, or work-related courses that low-education nonparticipants perceived.

Switching participation status. When the household members were enumerated during the screening interview in the NHES, questions were asked to determine eligibility for sampling persons for more detailed or extended interviews. In the NHES:91 and the NHES:95, the household respondent answering the screening items was asked whether or not the adults in the household had participated in AE activities in the last 12 months and their responses were used to assign sampling rates to the adults. In both surveys, a considerable number of adults who were sampled and completed the extended interview reported their participation status differently than was reported in the screening interview.

One possible reason for switching is that the household respondent answering the screening questions might not have the knowledge necessary to accurately report the participation status of the adult. This reason would only affect those adults who did not respond to both the screening and extended interviews themselves. Another possible reason for switching was that the screening question was very simple and respondents may not have fully understood what was meant by participation in adult education. The extended interview had a series of more detailed questions that asked about specific types of activities. Both of these reasons for switching were investigated.

While this *switching* does not result in bias in the estimates, it does reduce the efficiency of the sampling and increase the sampling errors of the estimates. Therefore, one of the goals of the

Bias Study was to better understand the switching phenomenon and obtain qualitative information on the causes of it.

3. Intensive Reinterview Method

The method used in the Bias Study to obtain a more accurate value for selected characteristics in the NHES:95 AE was an intensive reinterview. In an attempt to more closely determine the respondent's actual status or opinions, the intensive interview was more of a directed conversation between the respondent and the interviewer rather than a formally scripted interview. Respondents were reminded of their answers in the original survey and asked if the answers were still true for them. They were asked to recall other details related to their responses. Interviewers were fully knowledgeable about the original answers given by the respondent. Tactics similar to those used in cognitive laboratory work, such as asking open-ended questions and using probes to encourage the respondent to elaborate on his or her answer, were used. The goal was to obtain more detailed and accurate information by understanding the respondent's perspective and the reasons for his or her answers.

Although cognitive laboratory research has been a method used in the design phase of each NHES administration (Nolin 1996), the intensive reinterview was a new undertaking and presented several challenges that could have affected the responses. For example, the interviewers who conducted the NHES interviews have been thoroughly trained to read the questions verbatim and to avoid affective behavior that might influence the respondent. Adopting the conversational and unstructured interviewing method called for in the intensive reinterview requires major changes in their behavior. The interviewers were also called upon to implement some methods used in cognitive research, but they were not previously trained in these methods. The respondents also faced a challenge because the intensive reinterview differed significantly from the type of interview they had already done. They were called upon to give reasons for their responses and provide details rather than choose among response alternatives. To address these challenges, a protocol and data collection methods were developed especially for this study.

3.1 Protocol Development

The protocol developed for the Bias Study contained information on the respondent's participation status, education level, and responses in the original survey, along with a few open ended questions and suggested techniques for eliciting detailed answers. One interviewer was trained and then conducted several interviews that were monitored by Westat and NCES staff. These initial interviews served as a pilot test. Minor revisions of the protocol were made based on this experience before the majority of intensive reinterviews were conducted. The Adult Education Bias Study protocol is found in Appendix A.

Two difficulties encountered during the pilot training and interviewing were remedied in the revised protocol. First, the interviewer relied too heavily on the comments and probes suggested in the protocol. They were intended to be a point of departure for the training discussions and a suggestion for the interviewers to obtain the in-depth responses that were sought. However, because in most studies interviewers are required to read scripts verbatim, it took some encouragement and several practice interviews before the conversational approach was employed adequately.

In the revision of the protocol, the initial questions and suggested probes were reduced in number and reworded into a more conversational tone. Interviewers, thus, had to rely more on their own words, or, if they did read verbatim, at least the tone was more conversational. To prompt recall of courses, the protocol also contained examples of educational activities. These were simplified and reorganized by type (hobby/special interest, personal development, work-related) so that interviewers could mention some of each type to nonparticipants and some of the type reported previously by participants. This was an effort to promote recall. During the second phase of training, interviewers were asked to think of additional probes for each topic in the protocol and make note of ones they would be most comfortable using. They received feedback during the practice interviews according to their skill in adopting a conversational tone and using probes that arose from interaction with the particular respondent.

The other difficulty with the original protocol involved the use of a timeline that had been designed to help respondents remember key events and properly date them. Creating and using the timeline was intended to aid respondent recall about participation in adult education activities and to test for telescoping. It was suggested that meaningful dates, e.g., birthdays, holidays, or seasons be

elicited from the respondent and noted on the timeline for use in bounding discrete time intervals and asking respondents about each short interval. The first interviewer found this procedure awkward. The respondents did also because the task was out of context for them.

The protocol was revised to include a timeline with major dates that the interviewer could use for reference, if he or she wished. No overt explanation was made of the concept of the timeline to the respondent, who was simply urged to think back over the time prior to the date of the original interview. Interviewers were told to use the respondent's own time context, if possible, to aid recall. For example, if a respondent had reported that he or she had taken a course in the spring, the interviewer probed for activities during the summer or fall. Or, if the respondent had taken a course right after the New Year, he or she was asked about participating in activities between Thanksgiving and the Christmas holidays.

3.2 Interviewer Selection and Training

The intensive reinterviews were conducted by five interviewers who were carefully selected for the study. The interviewers were not members of the regular pool of NHES interviewers. The interviewers for the Bias Study were selected from a specially trained pool of interviewers who had experience in a wide variety of educational studies and previous experience in conducting semi-structured interviews. These interviewers were able to frame their next question to match the respondent's previous answers.

Interviewer training was conducted with two primary goals. The first goal was to thoroughly acquaint the interviewers with the purpose of the Bias Study and the methodology that would be used. The second was to model the behavior that the interviewers were to adopt in order to conduct the intensive reinterviews. So, although a training guide was developed (Appendix B), detailed written training materials were not distributed to the interviewers. Each interviewer received a handout (Appendix C) with the goals of the study and key points about the methodology. The training was conducted as a dialogue between the trainer and the interviewers. The interviewers were encouraged to ask questions, verify their understanding of the points made, and offer whatever suggestions or critiques they thought appropriate.

A three hour training session, which was attended by Westat and NCES staff, began with an overview of the purpose of the Bias Study, a brief explanation of the methodology, and a presentation on the background of the AE component. Each of the four goals of the study was explained and the characteristics of the population that would be responding to each section of the questionnaire were discussed. The purpose of the intensive reinterview and the techniques designed to elicit the information were thoroughly reviewed. Interviewers were instructed in active listening, giving neutral feedback to encourage in-depth responses, probing for details, and the creative use of silences. They were encouraged to use probes that reflected the meanings and the context that were expressed by the respondent. As the interviewers reviewed each section of the protocol with the trainer, they were reminded to engage in conversation with the respondent, paying close attention to what he or she was saying, and recording only key words while on the telephone; other comments were to be recorded immediately after ending the call. Six role plays were also included in the training, with a lengthy debriefing after each.

The first interviews were monitored, and the protocol revised, as explained above. The next set of interviews was conducted by the first interviewer after training on the revised protocol. These interviews were monitored by the trainer and the other interviewers. The entire group then discussed the techniques they observed and suggested other ways of obtaining information from the respondents. This served as additional training for the interviewers. Monitoring of interviews continued as an additional check on the efficacy of the protocol and the skill of the interviewers. Interviewers were provided with feedback from the trainer on engaging in purposeful conversation with the respondent and using appropriate probes.

3.3 Sampling

The main goal of the Bias Study was to develop estimates of bias, however, the budget provided for a very limited sample size. Because of the small sample sizes, it was decided that the typical design-based estimates gathered from the original interview would be subject to very large sampling errors and relationships would be obscured by these sampling errors. Thus, the results from this relatively small sample were analyzed assuming the observations were from independent, identically distributed random variables and sampling weights were not used. This assumption

naturally leads to relatively small sampling errors for the estimates of bias. These estimates are only used to explore the potential bias in the participation rates and cannot be extrapolated to the universe of all adults. This point is emphasized in the final section of the report.

The sample was randomly selected from both participants and nonparticipants who completed the AE extended interview and were not included in any other special studies (i.e., NHES:95 Splice Sample Interview, NHES:95 Expanded Screener Interview, and Reinterview Study). In order for a case to be eligible for the study, the following conditions had to be met:

- The original interview was never a refusal or a language problem;
- The original interview was conducted in English (as opposed to Spanish);
- Only one interview in a household was eligible; and
- All other extended interviews in the household had been completed.

The eligible cases were first classified into the following non-exclusive, six groups for sampling:

1. Adults who completed the original interviews as participants in adult education;
2. Adults who were sampled as nonparticipants but completed the interviews as participants in adult education;
3. Adults who were sampled as participants but completed the interviews as nonparticipants in adult education;
4. Adults who were sampled as low-education nonparticipants and answered the questions about obstacles to taking courses;
5. Adults who were sampled as low-education nonparticipants and did not answer the questions about obstacles to taking courses; and
6. Adults who were sampled as high-education nonparticipants or participants.

Since adults could belong to more than one group (e.g., they could have switched from participation to nonparticipation status, group 3, and been sampled as high education participants, group 6), some eligible adults had more than one chance of being sampled for the study. The sample was drawn by randomly selecting adults from group 1, then sampling all eligible adults in group 2,

provided they were not already sampled for the study from group 1. The sampling proceeded in this way until a sample of 230 adults was selected from all 6 groups, with 48, 27, 25, 34, 42, and 54 sampled from the groups, respectively. The overall sample size was derived based on the budget available and on discussions with NCES with respect to the numbers in each group.

Of the 230 cases sampled for the Bias Study, 206 respondents (90 percent) completed intensive reinterviews. Table 1 shows the characteristics of the 206 respondents by sampling group, participation status, and educational level. The respondents to the Bias Study had characteristics consistent with the targets developed for sampling.

Of the 24 cases not completed, there were 5 "refusal" cases (i.e., respondents refused to participate in the Bias Study interview), 4 cases in which telephone numbers were either disconnected, non-working, or changed to an unpublished number, and 14 cases in which the telephone was never answered (including 5 that were answered only by answering machines).

Table 1.-- Characteristics of respondents of the intensive reinterview, by sampling group, participation status, and educational level

		Nonparticipant		Participant		Became nonparticipant		Became participant	
Group	Total	Low education	High education	Low education	High education	Low education	High education	Low education	High education
Total	206	38	34	23	38	14	29	5	25
1	41			4	37				
2	26							2	24
3	23					8	15		
4	27	9		13		3		2	
5	41	29	1*	6	1*	3		1	
6	48		33				14		1

Note: Low education = less than a high school diploma or GED; high education = high school diploma or higher.

*Sampled as low-educated adults (i.e., adults without a high school diploma) in the screener interview, but reported that they had a high school diploma or higher education in the extended interview.

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

3.4 Data Collection

Data collection for the Bias Study began 10 weeks after the beginning of data collection for the full survey and extended over 6 weeks. Because all cases that met the four criteria for eligibility were included in the pool for sampling, some respondents were recontacted shortly after the original interview and some after a longer time. The time interval between the original interview and the intensive reinterview was between 6 and 18 weeks. As Forsman and Schreiner (1991) discuss, the time between interviews could have some effect on the estimates, but not much research has been done on this topic and it was not considered in this study.

Interview protocols were prepared by project staff and reviewed by interviewing staff prior to placing telephone calls. Each protocol was customized for the particular respondent and contained his or her name and telephone number, level of education, participation status, whether interest or barriers questions had been answered in the original survey, and whether participation status had switched during the interview. Thus, before talking with the respondent, the interviewer was thoroughly acquainted with his or her original responses to the items included in the intensive reinterview. Throughout data collection, the completed forms were monitored by project staff to ensure that all information was recorded appropriately.

During the data preparation, the information on the courses reported by respondents during the intensive reinterview were examined thoroughly. For example, project staff reviewed the time period of all courses reported in the Bias Study to make sure that they were taken during the 12-month period prior to the original interview. Project staff first verified that each course reported in the intensive interview was not reported in the original interview. Based on course names, each newly reported course was classified into one of three categories: work-related, personal development, and indeterminable.

In the Bias Study, there were five cases in which some or all of the new course names reported were the same (or very probably the same) as activities reported in other sections of the original interview, i.e., credential courses, ESL courses, or GED courses. Those courses were deleted from the analysis.

4. Findings

The data collected in the Bias Study were analyzed to address each of the four major objectives of the study. First, the potential biases in the estimates of the overall AE participation rate (based on the questions about participation in either work-related or personal development courses) and the separate participation rates for work-related and personal development courses are described along with interpretations of the likely reasons for the bias and suggestions on ways to reduce the bias. The issue of the validity of estimates based on the barriers items is addressed next. Finally, a qualitative analysis of the reasons for adults changing participation status is presented.

4.1 Bias in Participation Rate Estimates

The first and arguably the most important goal of the Bias Study was to estimate the response bias associated with estimates of the rate of participation in AE from the NHES:95. Adults were classified as participants in AE if they had participated in one or more of six different types of adult education activities during the past 12 months. The six types of activities were: ESL, ABE/GED, credential programs, apprenticeships, work-related courses, and personal development courses. Based on the responses in the NHES:95, 40 percent of all adults had participated in one or more of these activities[2] in the last 12 months (Kim, Collins, Stowe, and Chandler 1995).

As noted earlier, responding to the items about participation in work-related and personal development courses was identified as potentially being problematic. After phase 1 of the field test, interviewers reported that the participation questions in the work-related and other structured sections were too long, and some respondents expressed impatience when listening to the introductions. The length of these items resulted from the desire to provide a sufficient number of examples to prompt the respondent's memory. As a result of this reaction and monitoring the interviews, shorter questions for both sections were developed. Phases 2 and 3 demonstrated that the new introductions to these sections were significantly improved.

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[2] The participation rate of 40 percent excludes adults who participated only in full-time credential programs.

After the survey was completed, the results from the Reinterview Study confirmed that these two types of participation were much more likely to be reported inconsistently than any of the other types (Brick, Wernimont, and Montes 1996) even though the results were not statistically significant. These findings support the decision to restrict the Bias Study to an in-depth examination of reporting work-related and personal development courses.

Adults were classified as nonparticipants in the original interview if they said they had not taken any courses in the last 12 months. Of the 115 nonparticipants who responded to the intensive reinterview, 41 percent (47) indicated that they had taken one or more work-related or personal development courses (in the intensive reinterview, respondents were not asked about other types of courses). Since none of the participants sampled for the intensive reinterview denied having taken courses or indicated they were not taken in the appropriate time period, the response bias in the overall participation rate is one-directional and substantial.

Assuming the responding nonparticipants in the Bias Study are a simple random sample of all adults classified as nonparticipants in the NHES:95 (the analysis is thus unweighted), the bias in the NHES:95 estimate is 24 percent.[3] The bias is estimated by multiplying the percent of all adults who were nonparticipants as reported in the NHES:95 (60 percent) by the percent of the nonparticipants who reported participating in the intensive reinterview (41 percent). In general, the estimated bias is

$$\hat{b}(p_0) = (p_0 - 100)\hat{y}^{np} + p_0\hat{y}^{p} \qquad (4.1)$$

where p_0 is the estimate of the percentage of adults classified as participants in the initial interview, $\hat{y}^{p}$ is the estimate of the proportion of participants in the initial interview who reported not participating in the intensive reinterview, and $\hat{y}^{np}$ is the estimate of the proportion of nonparticipants in the initial interview who reported participating in the intensive reinterview. In this case, the last term of the

[3] The bias study addressed work-related and personal development courses. As a result, the adjusted rate does not reflect any changes in basic skills, ESL, credential, or apprenticeship programs. The reinterview found very low rates of gross and net differences for these types of AE, in fact, no differences for ESL. Their incidence is also low compared to work-related or personal development. As a result, these types of AE would not have a significant impact on bias adjusted rates.

estimated bias is zero ($\hat{y}^p = 0$), because no initial participants said they had not taken any courses during the intensive reinterview.

If the bias in the estimated percentage of adults who participated in AE is 24 percent, then the bias-corrected estimate is that 64 percent of adults participated in AE in 1995. This is substantially larger than the 40 percent reported in the NHES:95. Both the bias and the percentage participating from the NHES:95 are subject to sampling error and because of the small sample size the sampling error of the bias is very large relative to that for the estimate from the NHES:95. Taking advantage of the fact that $\hat{y}^p = 0$, the estimated bias can be written as

$$\hat{b}(p_0) = (p_0 - 100)\hat{y}^{np}$$

Thus, the estimated bias is a product of random variables and the approximate variance for a product of independent random variables is (Hansen, Hurwitz, and Madow 1953)

$$Var(\hat{b}) = \left(\hat{y}^{np}\right)^2 Var(p_0) + (p_0 - 100)^2 Var\left(\hat{y}^{np}\right) \qquad (4.2)$$

The approximate variance of the estimated bias is computed by substituting for the quantities in (4.2). The value of p_0 is 40 percent with an estimated variance of 0.25 percent (Kim, Collins, Stowe, and Chandler 1995) and the value of $\hat{y}^{np}$ from the intensive reinterview is 0.41 $\left(\frac{47}{115}\right)$ with an estimated variance of 0.002 $\left(\frac{1}{115}\left\{\frac{47}{115}\left(1-\frac{47}{115}\right)\right\}\right)$. Substituting these values into (4.2) and taking the square root, the standard error of the estimated bias of 24 percent is 2.7 percent. Thus, a 95 percent confidence interval for the estimated bias is from 19 percent to 29 percent, and for the percent of adults participating, the confidence interval is from 59 to 69 percent. The entire interval is considerably larger than the estimated 40 percent from the NHES:95.

Considering the nonparticipating respondents to the intensive reinterview a simple random sample of all nonparticipants in the original survey is a key assumption in estimating the response bias. Usually, the sampling procedures would ensure that this assumption holds, but the sampling methods described earlier were primarily concerned with making sure the sample sizes for specific groups were

large enough to provide enough adults with various characteristics. In addition, the overall small sample size in the Bias Study, and for the nonparticipant sample in particular, does not allow for broad generalizations. These estimates should be understood to be exploratory and do not permit making bias corrections to the full sample estimates.

One way to evaluate this assumption is to compare characteristics of the responding nonparticipants from the Bias Study to the characteristics of all nonparticipants from the NHES:95. Table 2 shows the age, sex, educational attainment, labor force status, and race/ethnicity percentage distributions for the NHES:95 and Bias Study nonparticipants. The estimates for the NHES:95 use the appropriate weights, while the Bias Study are unweighted percentages.

Table 2.-- Characteristics of nonparticipants from the NHES:95 and the intensive reinterview

	NHES:95		
	Total (in 1,000's)	Percent	Bias Study percent
Number of nonparticipants	105,552	100.0%	100.0%
Age			
Less than 30	18,022	17.1	20.0
31-50	39,604	37.5	40.0
51 or older	47,896	45.4	40.0
Sex			
Male	51,957	49.2	54.8
Female	53,564	50.8	45.2
Educational attainment			
Less than high school	24,946	23.6	39.1
High school diploma or GED	59,076	56.0	40.0
Associate's degree	3,865	3.7	5.2
Bachelor's degree or higher	17,636	16.7	15.7
Labor force status			
Employed	53,652	50.8	50.4
Unemployed	4,305	4.1	7.0
Not in labor force	47,565	45.1	42.6
Race/ethnicity			
White	79,002	74.9	70.4
Black	12,105	11.5	16.5
Hispanic	9,830	9.3	7.8
Other races	4,585	4.3	5.2

* The number of nonparticipants in the Bias Study was 115.

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

The distributions of the nonrespondents for the NHES:95 and Bias Study are similar for most characteristics and the simple random sampling assumption does not seem to be a problem. The educational attainment distributions, on the other hand, are different, with a much larger percentage of the Bias Study nonparticipants having less than a high school education. This is not surprising, since low education adults were sampled at different rates for the Bias Study. Nevertheless, this does point out the fact that the Bias Study sample did have different sampling rates and these are not reflected in the unweighted distributions. It also highlights the fact that other characteristics correlated with educational attainment are not likely to be distributed in the same way in the Bias Study as in the NHES:95. The result is that it is not prudent to place too much reliance on the point estimates or confidence intervals from the Bias Study. They are subject to a specification error that cannot be measured.

Even if the size of the estimated bias is not measured very precisely, the findings clearly show that a relatively large fraction of the adults classified as nonparticipants in the original survey take part in AE activities as reported in the intensive reinterview. Experience in other reinterviews (Brick and West 1992; Jenkins and Wetzel 1994) indicates that respondents are not very precise when asked for specific reasons for differences in their responses from one interview to the next. Because of this, respondents were not asked to report specific reasons for differences in their responses. However, it is likely that the survey methods are at least partially responsible for respondents reporting greater levels of participation in the intensive reinterview. In particular, providing more examples of courses, prompting the respondents to take time to think about their activities in the last year before responding, and specifically instructing the respondents that they should not limit themselves to formal courses in the intensive reinterview are potential reasons for the increased reporting. These potential reasons are examined in more detail later.

In addition to nonparticipants, participants in the original survey who were sampled for the Bias Study were asked if there were any courses they had not reported in the initial interview by using the same types of probes described above. The participants were also asked to specify when they took these courses so it could be verified that the courses were taken in the 12 months prior to the original interview. The respondents were encouraged to verbalize how they knew when they took the

course as a quality check and potential probe for additional courses. As a result of these questions, some participants identified additional courses that were not originally reported. All of the work-related and personal development courses participants reported in the NHES:95 were verified as being within the eligible 12 month time period.

Table 3 shows the percentage of participants by the number of additional courses they reported in the intensive reinterview. The number of courses nonparticipants in the initial survey reported in the intensive reinterview are also shown in Table 3. In the original interview, about one-third of those who reported participating in adult education courses reported additional courses during the intensive reinterview. The average number of additional courses reported by participants and nonparticipants were approximately the same (1.6 courses for participants and 1.9 for nonparticipants.

Table 3.-- Number of adults reporting additional courses in the intensive reinterview, by participation status in the NHES:95 and number of additional courses

	Total		Participant		Nonparticipant	
	Number	Percent	Number	Percent	Number	Percent
Total	206	100.0%	91	100.0%	115	100.0%
Number of additional courses						
None	130	63.1	62	68.1	68	59.1
One	38	18.4	18	20.0	20	17.4
Two	24	11.7	7	7.7	17	14.8
Three	9	4.4	3	3.3	6	5.2
Four	5	2.4	1	1.1	4	3.5

Note: Details may not add to 100 percent due to rounding.

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

The reporting of additional work-related and personal development courses by adults classified as participants in the original survey is a further indication that the respondents may have had a more restrictive understanding of the scope of activities than was intended. Drawing on the work of Schwarz (1995), one interpretation of this finding is that respondents might have reacted to the context of the original interview in determining what was an eligible activity. The NHES:95 interview

began by asking about more formal or traditional types of participation (ESL, ABE/GED preparation classes, credential programs, and apprenticeships) and some respondents may have created a response paradigm before the questions about the less formal activities (work-related and personal development courses) were asked. In the intensive reinterview, the context was different because the only types of courses discussed were work-related and personal development courses. If this hypothesis is correct, then modifying the interview at the juncture between formal and informal courses to make respondents more aware of the shift to less formal courses might improve reporting in future surveys. Other methods such as providing more examples and probes traditionally have been used for this purpose, but evidence described below suggests that more examples may not be very effective.

4.2 Bias in Work-Related and Personal Development Participation Estimates

Because such a large proportion of adults reported additional courses in the intensive reinterview, it is important to understand the types of courses they added and what this implies about the bias in the estimates of the participation rates for work-related and personal development courses. Below, the types of additional courses reported are examined first and then the bias in the participation rates are estimated.

Table 4 shows the percentage of adults who reported additional work-related and personal development courses in the intensive reinterview. Because some adults reported both types of additional courses, the percentages across types sum to more than 100 percent. The bases for computing these percentages are given in the first row of the table, and include only adults who reported additional courses rather than all adults in the intensive reinterview.

Table 4.-- Percentage of adults reporting additional courses in the intensive reinterview, by participation status and type of course added

	Total	Participant	Nonparticipant
Number of adults adding courses	76	29	47
Type of course			
Work-related	48.7%	34.5%	57.4%
Personal development	51.3	65.5	42.6
Indeterminable	7.9	3.4	10.6

Note: Percentages add to more than 100 because adults may have reported additional work-related and personal development courses. These adults are included in both types of courses.

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

Overall, about half the adults who named additional courses reported work-related courses and half-reported personal development courses. Participants were more likely to add personal development courses and the nonparticipants were more likely to add work-related courses, but these differences are not statistically significant.

This phenomenon can also be examined by profiling the characteristics of adults who added courses. Table 5 gives the percentage distributions for adults who added courses by the type of courses added and the characteristics of the adults. The first column of the table gives the estimate from the NHES:95 for comparison purposes. In this table, persons who added both work-related and personal development courses are included in both of the last two columns of the table, while those who added only courses that could not be classified (indeterminable from Table 4) are excluded from the last two columns of the table. As a result, the sum of the number of persons in the last two columns of the table adds to the total (76) merely by chance. The estimates give some indication of the types of response differences that may be present. For example, the results suggest that women were more likely to add personal development courses and men were more likely to add work-related courses. However, these differences are not very large or statistically significant. The last characteristic in the table is the overall participation status of the adult when sampled and when the interview with the adult was completed. For example, the 'became nonparticipant' row of the table

refers to the adults who were sampled as participants (as designated by the person who answered the screening interview) and, when interviewed, the adult reported no adult education participation. The last two rows are based on very small sample sizes, but from the participant and nonparticipant rows it is clear that participants and nonparticipants were likely to add work-related and personal development courses at different rates.

Table 5.--Percentage of adults reporting additional courses in the intensive reinterview, by type of course added and characteristic of the adult

Characteristic	NHES:95		Bias Study		
	Total (in 1,000's)	Percent	Total	Added work-related	Added personal development
Number of adults	189,576	100.0%	76	37	39
Age					
Less than 30 years	46,159	24.3	22.4%	21.6%	23.1%
31 to50 years	80,091	42.3	53.9	54.1	53.8
51 years or older	63,327	33.4	23.7	24.3	23.1
Sex					
Male	90,275	47.6	50.0	56.8	43.6
Female	99,301	52.4	50.0	43.2	56.4
Educational attainment					
Less than a high school diploma	29,699	15.7	25.0	29.7	20.5
High school diploma or GED	103,367	54.5	38.2	32.4	43.6
Associate's degree	9,975	5.3	10.5	8.1	12.8
Bachelor's degree or higher	46,535	24.5	26.3	29.7	23.1
Labor force status					
Employed	117,833	62.2	71.6	79.5	68.3
Unemployed	8,167	4.3	10.8	7.7	12.2
Not in labor force	63,576	33.5	17.6	12.8	19.5
Race/ethnicity					
White	144,602	76.3	73.0	64.1	80.5
Black	20,808	11.0	12.2	17.9	7.3
Hispanic	15,705	8.3	8.1	5.1	9.8
Other races	8,461	4.5	6.8	12.8	2.4
NHES:95 participation status					
Participant	57,878	30.5	28.9	18.9	38.5
Nonparticipant	94,428	49.8	25.0	27.0	20.5
Became participant	26,176	13.8	11.8	10.8	12.8
Became nonparticipant	11,094	5.9	35.5	43.2	28.2

Note: Percentages may add to greater than 100 because adults who added both work-related and personal development courses are included in both of the last two columns of the table. Persons who added only courses that could not be classified as either work-related or personal development are not included.

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

Based on the NHES:95 responses, 21 percent of adults were estimated to have participated in work-related courses during the previous 12 months and 20 percent were estimated to have participated in personal development courses (Kim, Collins, Stowe, and Chandler 1995). The

extent of the bias in these estimates can be estimated using equation (4.1). The bias for the work-related participation rate is

$$\hat{b}(p_{0,wr}) = \left(p_{0,wr} - 100\right)\hat{y}^{np} \tag{4.3}$$

where $p_{0,wr}$ is the estimate of the percentage of adults classified as work-related participants in the initial interview, and $\hat{y}^{np}_{wr}$ is the estimate of the proportion of adults who did not report participating in work-related activities in the initial interview but reported participating in the intensive reinterview (since more of the participants denied having participated).

The value of $p_{0,wr}$ is 21 percent from the NHES:95. Because we are now dealing with participation in a particular type of adult education, the value of $\hat{y}^{np}_{wr}$ has two components: those classified as nonparticipants who reported taking work-related courses in the intensive reinterview, and participants in the initial survey who reported taking work-related courses for the first time in the intensive reinterview. In the Bias Study, 23 percent of the nonparticipants (27 of the 115) reported taking work-related courses and 8 percent (7 of 91) of the participants reported taking work-related courses for the first time.

Substituting these into (4.3), the estimated bias for the percent of adults participating in work-related courses is 16 percent $(21-100)\left(\frac{.6}{.81}\frac{.27}{115}+\frac{.21}{.81}\frac{7}{91}\right)$. The standard error can be computed using (4.2), where $\hat{y}^{np}_{wr}$ is treated as a sum of the two components described above and each of the components is itself a product of independent random variables. Using this approach, the standard error of the estimated bias is 3 percent and the 95 percent confidence interval for the estimated bias is from 10 to 22 percent. Translating to the estimated percentage of adults participating in work-related courses, the point estimate is 37 percent rather than the 21 percent estimated from the NHES:95 and the bias-corrected 95 percent confidence interval is from 31 percent to 43 percent.

The same calculations can be performed for personal development courses to compute the estimated bias and its standard error. The quantities needed for these computations are the estimate of

personal development participation rate from the NHES:95 ($p_{0,pdr}$ = 20 percent), the percentage of nonparticipants reporting personal development courses in the intensive reinterview (20 of 115), and the percentage of participants who reported taking personal development courses for the first time in the intensive reinterview (14 of 91). The estimated bias for the personal development course participation rate is 14 percent with an estimated standard error of 3 percent. The bias-corrected point estimate for the personal development participation rate is 34 percent and the corresponding 95 percent confidence interval for this estimate is from 30 percent to 40 percent. The estimated biases are summarized in Table 6.

Table 6.--Estimates of bias in overall, work-related, and personal development participation rates

Type of participation	NHES:95 estimate	Estimated bias	Sampling error	Bias-corrected estimate
Overall	40%	24%	2.7%	64%
Work-related	21	16	3.0	37
Personal development	20	14	3.0	34

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

These estimates show that the underreporting bias is approximately the same for both work-related and personal development courses. While these estimates are subject to the same caveats as the overall estimates of participation rates, they also have an interesting implication because of the difference in the wording of the questions about the two types of participation. The introduction to the question about work-related courses does not include specific examples, but does mention courses taken at work, taken somewhere else but related to work or career, and courses taken to obtain a license or certificate related to work or career. On the other hand, the introduction to the question about personal development specifically mentions courses including arts and crafts, sports or recreation, first aid or childbirth, Bible study, or any other course.

One way of interpreting the approximately equal biases for the two types of participation is that adding examples does not improve the quality of reporting in this situation. This interpretation is consistent with the hypothesis that respondents develop a response paradigm in the original interview that includes only more formal courses. If this is true, then the addition of the specific examples may not cause respondents to change their paradigm. Thus, a different approach might be needed to address the exclusion of less formal courses in reporting. The evidence on the biases by type of participation suggests methods other than simple examples or probes may be necessary if more complete reporting of work-related and personal development courses is to be obtained in the same interview that contains questions about formal courses.

4.3 Response Errors in Questions on Barriers to Participation

The NHES:95 AE interview was generally structured so that adults who reported not participating in a particular type of activity were asked if they were interested in taking any courses in this area and, if they were interested, they were asked if they knew of any courses they could have taken in the last 12 months. Those adults who were interested and knew of courses were then asked a series of questions about obstacles or barriers that might have prevented them from participating in these activities.

These questions were developed for the NHES:95 and included in an attempt to better understand why adults did not participate in AE activities. This understanding could be particularly important for developing and marketing courses for adults with low educational attainment who are generally those most in need of adult education services. Although the questions were field-tested prior to the NHES:95, the reliability of the items was uncertain. These items were also included in the regular Reinterview Study to estimate the consistency of the adults reporting. Despite the small sample size for that study, the reinterview estimates showed there was the potential for large response consistency problems for the barriers questions. The Reinterview Report (Brick, Wernimont, and Montes 1996) suggested research consider different approaches for asking these questions in future interviews.

The barriers questions were also included in the Bias Study to examine the validity of the responses to complement the information on the consistency of responses obtained from the Reinterview Study. The Bias Study asked respondents to describe their responses in more detail to determine if there was a common understanding of the questions and response categories that was reliable from an analytic perspective. The results of the Bias Study for the barriers items are presented below, beginning with the interest and knowledge questions asked of nonparticipants.

Interest and knowledge questions. In the intensive reinterview, 48 respondents who reported they were not interested in taking any courses during the original interview were asked to more fully explain their lack of interest. About 60 percent of the respondents (29 of 48) reported that they were not interested in taking courses for various reasons such as having no desire to take courses, having no need for it in their current jobs, or being retired from work. On the other hand, about 40 percent of the respondents (19 of 48) explained that they were too old, had problems with health, or had family responsibilities that made it difficult to take courses. The latter responses could be viewed as barriers to participating rather than reasons why the adults were not interested in participating.

These results show that many respondents to the original interview may have said they were not interested in education activities because problems or commitments prevented them from participating in educational activities. The objective of the interest question was to determine if the adult had any interest and then followup a positive response to determine what, if any, barriers prevented the adult from participating. The response to this question also affects which subsequent question are asked. Since respondents answered the interest question by considering barriers rather than interest alone, this response can be considered an error. There are many possible explanations of this type of response error. For example, adults with circumstances that persistently prevent them from undertaking other activities may never consider the possibility of taking AE courses. These adults might respond that they are not interested, but if their circumstances changed, they might be interested. It is probably not clear to respondents that they should respond to the interest question irrespective of current circumstances that might be obstacles to participating.

Because of the importance of this series of questions for adults with low educational attainment levels, the responses of the eight Bias Study respondents who had not graduated from high school are examined in more detail. These are respondents who reported in the original interview that

they were interested in taking courses but were not aware of any courses that they could take. Although the sample size is very small, the responses can provide some understanding of their perceptions of the knowledge question. Of these eight respondents, seven offered reasons for not taking courses instead of referring to knowledge of courses, and this is inconsistent with the intent of the questions. Other questions in the interview address interest and barriers to participation. The verbatim responses show that the respondents could not take courses because they felt that they had no need to pursue a GED, family problems or responsibilities interfered, old age, ill health, or disabilities prevented them, they did not have the time, or they lacked transportation. Some also reported that they were not interested in taking courses.

These results are especially important because the interest and knowledge questions act as a filter for asking adults about barriers to participating. If a substantial percentage of the respondents are excluded from the barriers items because they interpret the interest and knowledge questions differently, then the set of adults who do respond to the barriers items may not be representative of all adults with an interest in participating and knowledge of courses they could have taken. Since the intent of the interview was to estimate the types of barriers faced by adults with an interest and knowledge of courses, the findings show that the denominator of the percentage is probably subject to significant response problems.

The findings from the Bias Study regarding questions about interest in and knowledge of education activities are generally consistent with those from the Reinterview Study. Both studies indicate potential response problems. In fact, there is a concern that respondents may not be able to respond accurately to questions of this nature in an interview where they do not have the opportunity to think carefully about the questions. Issues such as interest or knowledge may be explored more effectively using qualitative methodologies, such as in-depth interviews rather than the standard interview methods used in the NHES:95.

Barriers questions. The barriers questions were administered to 26 respondents who reported in the NHES:95 interviews that they were interested in educational activities and knew about activities in which they could participate, but something prevented them from participating. In the original interview, the respondents were asked to choose one of four main barriers: time, money or cost, child care, or transportation. They could also specify another main barrier to participating.

After identifying the barrier that was the greatest obstacle to their participation, respondents were asked to rate more specific aspects of the main barrier. The response categories for the specific aspects were: major obstacle, a minor obstacle, or not an obstacle. For example, specific aspects of the cost barrier included "amount of tuition and fees for classes," "cost of books and supplies for classes," "cost of child care," and "cost of transportation."

Table 7 presents the responses of the 26 adults who answered the main barrier question (i.e., what was the main thing that prevented you from taking career or job related courses?) in the original interview and the intensive reinterview. The barriers questions for other sections of the interview such as ESL and ABE/GED were included in the Bias Study but too few respondents were sampled to report in the tables below. Overall, 18 of the 26 respondents (69 percent) reported the same main barrier in both interviews. The adults reported time as the main barrier more often and cost less often in the intensive reinterview than in the original interview. Because of the small sample size and the multiple response categories for the question, the consistency of the reporting may be a useful indicator of the quality of the responses. If the responses to the original and intensive reinterview are not consistent, then there is a high potential for bias but the direction of the bias may be hard to establish because of the small sample size.

Table 7.--Number of adults responding to main barriers item in the NHES:95 original interview and intensive reinterview

Intensive reinterview	NHES:95 interview					
		Main barrier				
	Total	Time	Cost	Child care	Transportation	Other
Total	26	12	9	1	2	2
Main barrier						
Time	18	12	3	0	2	1
Cost	5	0	5	0	0	0
Child care	3	0	1	1	0	1
Transportation	0	0	0	0	0	0
Other	0	0	0	0	0	0

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

In the Bias Study, respondents were asked to explain more about their choice of main barriers and then rate the intensity of the main barriers they identified (major, minor or no obstacle). Their responses revealed that they attached different meanings to words like time and cost that they chose as their main barriers. For example, of the 12 respondents reporting time as the main barrier in the intensive reinterview, some explained their choice by referring to the hours they spent at work, some referred to the time involved in child care, and some to the time spent with other family responsibilities. Similarly, when money or cost was cited as the main barrier, some respondents were referring to lack of income due to a disability and others were referring to lack of money for tuition. This ambiguity with respect to the meaning of the terms could lead to inconsistent reporting, even by the same individuals when asked the questions more than once. A related observation is that a large percentage of adults gave an 'other' response when asked what may have prevented them from participating in the original interview. In response to this question (F22) in the work-related section, 19 percent of the respondents gave an 'other' response (about the same percent replied 'other' when asked in the sections of the interview dealing with ESL and ABE/GED). All of this evidence implies that the responses are quite likely to be subject to large response variability and may be biased.

When the respondents were asked to rate the intensity of the main barriers (i.e., whether the main barrier was as a major obstacle, a minor obstacle, or not an obstacle) in the Bias Study (question numbers F22 and F24), their responses were very inconsistent with their original ratings. Only 2 of the 26 respondents gave the same ratings for the specific items in both the original interview and the intensive reinterview. An example of this lack of consistency can be seen by looking at the responses to the specific obstacle "need to take care of family duties or chores around the house," which was rated if time was reported as the main barrier. Table 8 shows the responses to this item for the 12 respondents who were asked the item in both the original and intensive reinterview. The results of the table show the responses were not consistent. Only 4 of the 12 respondents gave the same rating both times. The responses for the other specific aspects were very similar to those shown in this example. A full list of the discrepancies in ratings of the specific aspects of the work-related barrier questions is given in Appendix D.

Table 8.--Number of adults responding to the specific time barrier on need to take care of family duties or chores in the NHES:95 and intensive reinterview, by response category

Intensive reinterview	NHES:95 interview			
	Total	Type of obstacle		
		Major	Minor	None
Total	12	3	5	4
Type of obstacle				
Major	3	1	1	1
Minor	5	1	2	2
None	4	1	2	1

Note: Six respondents who reported time as a main barrier in the NHES:95 but not in the intensive reinterview are excluded from this table.

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

The results from the Bias Study for these items are consistent with those from the Reinterview Study. In that analysis, a more lenient approach was taken by collapsing response categories (minor obstacle and no obstacle were collapsed into one response for one analysis and major and minor obstacle were collapsed for another analysis). Even with the collapsing, the questions had low reliability in the Reinterview Study, but the sampling errors of the estimates were large. Generally, adults were somewhat more consistent in reporting an obstacle (collapsing major and minor) rather than the alternative (collapsing minor and no obstacle).

Both the Bias Study and the Reinterview Study show that respondents' ratings of the intensity of the main barriers appear to be inconsistent. Though both studies are based on small samples, the degree of agreement between them strengthens the common findings. Both studies indicate that the approach for asking about barriers to participation needs to be reconsidered. The analytic objectives may be better served by other methods of collecting data on obstacles because simple revisions in the questionnaire wordings are not likely to improve the quality of the data. Alternatively, the intensity questions could be eliminated or replaced by questions that ask about the behaviors of adults, as suggested in the Reinterview Study.

4.4 Switching Participation Status

The final objective of the Bias Study was to explore reasons that responses to the participation item in the screening interview were not consistent with the final participation status reported in the NHES:95 interview. In the NHES:95, the household respondents' answers were used to assign sampling rates to the adults. Some adults who were sampled and completed the extended interview reported their participation status differently than was reported in the screening interview. Ten percent of the respondents in the NHES:95 who were sampled as participants based on responses to the screening item became nonparticipants based on responses to questions in the extended interview; 9 percent switched from nonparticipant to participant status. If it is possible to reduce this phenomenon of switching, then the standard errors of the estimates, especially for estimates of participation, can be reduced. The Bias Study goal of better understanding the reasons for switching is an important first step in making such improvements in future surveys.

One reason for switching participation status could be that the household respondent answering the screening questions does not have the knowledge necessary to accurately report the participation status of the adult. This would only affect those adults sampled for the extended interview who did not respond to the screening interviews themselves. The adults with different participation status after the interview who did not answer the screening items for themselves are called proxy switchers. Another reason for switching was that the screening question was not as elaborate as the full set of participation items in the extended interview and respondents may not have fully understood what was meant by participation. Adults who answered both the screening and extended interviews and still changed participation status are called self-switchers. Both of these types of switching were investigated in the Bias Study.

Proxy reporting of participation status. The Bias Study included 34 "proxy switchers," those whose participation status changed after another household member responded to the screening interview. It is important to realize that the extended interviews in the NHES:95 had to be completed by the sampled adult; no other adult could complete this interview. The sampled adults classified as proxy switchers were asked to assess the knowledge of the person who answered the screening interview with respect to the educational activities of the sampled adult at the time of the NHES:95 interview. They were also asked to evaluate their ability to report on the educational activities of other adult members of their household.

Table 9 shows that nearly two-thirds of the sampled adults said that the screener respondents should have known about their educational activities and, by implication, could have answered the question correctly if they understood it. The sampled adult's opinion of the knowledge of the household respondent did not differ dramatically for those adults that were finally classified as participants and for those classified as nonparticipants. (It should be noted that because the scheme used in the Bias Study sampled adults separately by their final participation status, row percentages should not be computed for this table.) The 12 sampled adults who believed the screener respondents would not be able to accurately report the educational activities of the other household members reported that the screener respondents might not know what other members of the household do at work and would be forced to guess to answer the participation questions. The 12 month recall period may also attribute to the difficulty of responding accurately for other household members.

Table 9.--Number of "proxy switchers," by their final participation status and their opinion of the proxy's knowledge of their educational activities

Adult's opinion of proxy's knowledge	Total		Final NHES:95 participation status			
			Participant		Nonparticipant	
	Number	Percent	Number	Percent	Number	Percent
Total	34	100.0%	11	100.0%	23	100.0%
Knowledgeable	22	64.7	6	54.5	16	69.6
Not knowledgeable	12	35.3	5	45.5	7	30.4

Source: U.S. Department of Education, National Center for Education Statistics, Bias Study of the National Household Education Survey, 1995.

When the "proxy switchers" were asked whether they would know about the educational activities of the other members of their households, nearly three-quarters said that they would know about the educational activities of other household members. This question was followed by additional queries to evaluate whether they would need examples, would guess, or would say that they did not know when asked this question. Most respondents said that they would say that they did not know, and only a few said they would guess.

An intriguing finding was the fact that half the respondents said they thought additional examples of educational activities would help them to respond accurately, despite admitting that they would still not know whether other household members participated in AE activities or not. This may be a case in which the respondents were trying to suggest ways to improve the survey in general, without reference to their specific circumstances. It is unclear from their responses how additional examples would improve the accuracy of their reports.

On the other hand, adding examples does have some negative effects. Some respondents might assume that the examples are the entire list of eligible activities and ignore other types of activities they would otherwise report. Another disadvantage of adding examples is that it lengthens the time of the screening interview and this is costly because it must be done for every member of the household, not just those who are sampled. In the NHES:91 screener, a longer and more detailed list of educational activities was used, and considerable respondent annoyance was reported by interviewers and observed in monitoring.

Self reporting of participation status. The Bias Study included 37 "self-switchers" (20 self-switchers who became participants and 17 self-switchers who became nonparticipants). These are respondents who answered one way in the screening interview and the other way in the extended interview. The self-switchers were asked to explain what had happened to change their minds.

Some of the Bias Study self-switchers who became participants in the course of the extended interview reported that they did not realize that courses at work or personal development courses were to be included as education activities. They said they were thinking about more traditional, structured types of education. Some of the Bias Study self-switchers who became nonparticipants in the NHES:95 extended interview gave rather ambiguous reasons for switching. For example, some said they were distracted during the screening interview, while others could not remember why they had changed their minds.

The Bias Study responses on switching participation status do indicate that some proxy respondents may not have the knowledge needed to report accurately the educational activities of other household members, particularly for work-related and personal development courses. Perhaps even more important than the knowledge issue is the perception of the types of activities to be included

when respondents are asked about education activities. This appears to be a problem that affects the responses in the screening item. While it is possible that reporting some types of activities would be improved by adding examples or having a more detailed series of questions, this approach has other disadvantages that may outweigh any gains in variance reduction of the estimates associated with better reporting for the sampling of adults. Attempts to modify the screening item in this way are not recommended unless they are supported by research showing the decreases in variance of the estimates are sufficiently large to offset the additional cost in screening and the potential bias due to under-reporting of other types of activities.

5. Summary and Recommendations

The Bias Study addressed four specific objectives and uncovered some very important results that have implications for the analysis of the NHES:95 and the development of future surveys of Adult Education. The most important findings are summarized below for each of the Bias Study objectives along with recommendations for future AE surveys. Methodological recommendations for undertaking other intensive reinterviews are also presented.

Overall participation rate. The estimated bias in the overall participation rate of adults was 24 percent and the bias-corrected estimate is that 64 percent of adults participated in AE in 1995. This is substantially larger than the 40 percent reported in the NHES:95. This estimate was based on the assumption that the nonparticipant sample for the Bias Study has the same distribution as that for all nonparticipants in the NHES:95. Even though the assumption does not hold exactly, the findings show that participation was underreported in the NHES:95, and the underreporting could be very substantial.

It was hypothesized that a reason for the underreporting may have been due to how respondents reacted to the context of the NHES:95 interview. Since the interview began by asking about formal types of participation, some respondents may have created a response paradigm that restricted their answers to more formal courses when the work-related and personal development courses were asked.

The evidence from the Bias Study indicates the estimates of participation are less than they would be if adults completely understood the intent of the survey. However, it is recommended that the NHES:95 participation rates be published without adjustments. The main reason for this recommendation is that the bias-corrected estimates are not very reliable themselves because they are based on small samples and assumptions about their sampling distribution. Any estimates or adjustments based on the Bias Study estimates would be very unstable.

For future studies, a new approach to asking about less formal courses is suggested. One idea for an approach that should be considered is proposed after reviewing the findings for work-related and personal development course participation rates.

Participation in work-related and personal development courses. The underreporting of participation for work-related and personal development courses was substantial and about the same size for each of these types of participation. The bias-corrected estimate of the percentage of adults participating in work-related courses was 37 percent rather than the 21 percent estimated from the NHES:95. The bias-corrected estimate for the personal development participation rate was 34 percent rather than the 20 percent estimated from the NHES:95.

Despite the fact that more examples were used for the personal development courses than for the work-related course question, the estimated biases were approximately the same for the two types of participation. This suggests that simply adding examples to the wordings of the questions may not improve the quality of reporting and that other approaches to the underreporting problem may be needed.

A new interviewing approach is proposed that makes the respondent aware of a change in the nature of the interview prior to asking about work-related participation. If the adults have developed a response paradigm that focuses on formal types of participation (i.e., traditional schooling or formal programs), then a relatively drastic intervention may be needed to modify this behavior. More traditional methods of providing examples and probes might have little impact. Different types of intervention should be considered. For example, a simple statement that the interview will now focus on less formal types of activities may not be sufficient. However, a modification in which the respondents are asked to actively cooperate in changing the focus, for example, by asking them to give

examples of less formal courses, might be more effective. Clearly, cognitive research on this topic is needed before any interviewing method is implemented.

Barriers to participation. The adults were not very consistent in responding to the items about interest in and knowledge of specific AE activities. When asked to explain their reasons for lack of interest, about 40 percent of the respondents mentioned obstacles rather than reasons they were not interested in participating. When adults who were interested but not aware of courses that they could take were asked for explanations, they too offered reasons for not taking courses instead of referring to their knowledge of courses. Since these questions act as a filter for asking adults about barriers to participating, the inconsistency and lack of validity of responses to these questions results in excluding some adults from being asked subsequent questions reducing the value of these questions for analysis.

In addition, the Bias Study confirmed the Reinterview Study findings with respect to the consistency of the responses for the barriers questions. The responses to the main barrier items were reported the same in the original interview and the intensive reinterview less than 70 percent of the time. Adults also ascribed different meanings to the words used to describe the main barriers. The ratings of the intensity of the main barriers appeared to be inconsistent.

When using the NHES:95, we recommend that analysts be urged to inform readers of the consistency problems associated with the barriers questions. While it is reasonable to report on the main barriers items with this caveat, we recommend that analysts avoid the ratings of the intensity of the main barriers. This is also a recommendation in the Reinterview Study.

For future studies, the approach to asking about barriers needs to be reconsidered, especially for the intensity measures. In-depth interviews should be considered instead of including these items in future general telephone surveys. Possible approaches include dropping the intensity questions entirely or replacing them with questions that are more related to the behaviors of adults, as suggested in the Reinterview Study. Clearly, a research agenda needs to be established for these questions if a more effective measure of barriers is to be collected from large-scale telephone surveys.

Switching rates. The Bias Study explored the reasons for inconsistent reporting of participation status in the NHES:95, the switching problem, but did not uncover many features that

were not already known. Some proxy respondents may not have the knowledge needed to report the educational activities of other household members accurately. Furthermore, it appears that many adults do not understand the full range of activities that should be included when the screening questions are asked. However, the Bias Study did not lead to ideas for new and efficient ways to improve this situation.

Methodological recommendations. The intensive reinterview methodology applied in the Bias Study appears to have good potential as a method for detecting biases, especially if more traditional methods like record check studies are not feasible. Despite the fact that this was the first effort at doing this type of survey in the NHES, the results were promising. Underreporting was discovered and it appears that response biases can be estimated using this methodology. The alternative approach of using reconciled reinterviews has not proven to be successful for estimating bias.

There are a number of potential improvements that were recognized based on the experiences of this study. One of the most important recommendations is that the sample design should be a valid probability sample with a large enough sample size so that reliable estimates of biases and their standard errors can be made. In this study, the sample size was small, the sample was targeted to meet specific goals, and the results cannot be generalized to the entire population without making assumptions about the distribution of the sample. This approach was deemed appropriate for the first attempt at this type of study, but it has obvious limitations for analysis.

Another area that can be improved is the selection of issues that should be addressed using this method. For estimating biases in the AE participation rates, the intensive reinterview approach was very effective. However, for estimating the consistency of reporting, such as in the switching participation questions, the standard reinterview is a better mechanism. It is specifically designed to do this and the Bias Study often simply confirmed the findings of the Reinterview Study without adding much new information.

This Bias Study also attempted to explore why the respondents replied in certain ways for the questions about interest in and knowledge of AE courses. This was not very successful. In general, respondents do not articulate reasons very well in interviews, even if the interviews are more

conversational and unstructured like the intensive reinterview. Other approaches, such as focus group methods, are better suited for this purpose.

Finally, from an operational perspective, it is important to understand that this method is more costly than a regular reinterview because it requires more effort to organize than the standard interview or reinterview. To be effective, interviewers must be trained extensively because the method requires nonstandard approaches to interviewing. If interviewers are not used, staff who are already trained in cognitive methods should be used, and this may be expensive if the sample size is large. As a result, we recommend that this method be used primarily when there is an indication of reporting errors that might result in biases and the estimates subject to the biases are important to the survey objectives.

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Appendix A:

Adult Education Bias Study Protocol

BIAS STUDY

Date of original interview _____

Time of original interview _____

CASE NUMBER _____

TEL. NUMBER _____ STATE ____ TIME ZONE: E C M P

NAME OF RESPONDENT _____

STRATUM _____ MAINRSLT _____ IBGRADE _____

☐ Participant [Number of courses _____]

- ☐ Work-related
- ☐ Other formal
- ☐ ESL
- ☐ ABE/GED
- ☐ Apprenticeship
- ☐ College or graduate degree
- ☐ Vocational technical program

☐ Nonparticipant

☐ Not interested ☐ Does not know

- ☐ ESL
- ☐ ABE/GED
- ☐ Work-related

☐ Barriers Questions

- ☐ ESL
- ☐ ABE/GED
- ☐ Work-Related

☐ Switcher [to participant/nonparticipant status]

- ☐ Proxy [Screener respondent _____]
- ☐ Self

May I speak with (RESPONDENT NAME)? Hello, my name is (INTERVIEWER NAME) and I'm calling for the U.S. Department of Education. Recently, you and many other people across the country completed an interview about education activities, and we are calling back some people to see if we can improve our survey. Your help will be greatly appreciated, and it will take only a few minutes.

Date of original interview _____

RECALL

FOR PARTICIPANTS:

When we spoke with you, we asked you whether or not you had participated in a variety of courses, workshops, or seminars in the 12 months before we called, that is, from (MONTH) 94 to (MONTH) 95.

You reported that you had participated in (an apprenticeship program/college or graduate courses/a vocational program/basic skills or high school completion classes/ESL classes). [GO TO NEXT PAGE.]

You (also) reported that you had participated in (NUMBER) courses. (They/Some of them) were:

	COURSE NAME	WHEN TAKEN (MONTH/YEAR)
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____
6.	_____	_____
7.	_____	_____
8.	_____	_____
9.	_____	_____

Do you remember when you took (COURSE 1)? [IF THE EXACT MONTH AND YEAR CANNOT BE RECALLED] Was it in the spring or summer, perhaps? And that was 1994? [ASK FOR COURSE 2, ETC.]

Date of original interview _____

We know that many people forget about some educational activities when asked in an interview or can't easily recall exactly when they did these things.

We'd like to know if you now remember any other classes or courses with an instructor that you took during the 12 months before we called you. We want to make sure that we made it clear that we were interested in all kinds of educational activities for work or personal reasons, so let me give you a few examples:

[USE EXAMPLES THAT ARE DIFFERENT FROM THE TYPE OF COURSES LISTED ABOVE.]

Crafts or cooking
physical fitness or aerobics
sports lessons like tennis or golf
Bible study
CPR
stress management
time management
childbirth classes
word processing
diversity training
communication skills

[IF APPROPRIATE] Could you think back for a moment to [USE THE RESPONDENT'S TIME REFERENCE (E.G., MONTHS, SEASONS) TO PROBE THE TIME PERIODS NOT MENTIONED PREVIOUSLY]. Were you doing other educational activities then?

	NEW COURSE NAME	WHEN TAKEN (MONTH/YEAR)
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

Date of original interview _____

TYPES OF EDUCATIONAL ACTIVITIES

NONPARTICIPANTS:

When we spoke with you, we asked you whether or not you had participated in a variety of courses, workshops, or seminars in the 12 months before we called, that is, from (MONTH) 94 to (MONTH) 95, and you said that you had not.

We know that many people are not involved in educational activities, but sometimes they did take a class and just didn't recall it when asked in an interview.

We'd like to know if you now remember any classes or courses with an instructor that you took during the 12 months before we called you. We want to make sure that we made it clear that we were interested in all kinds of educational activities for work or personal reasons, so let me give you a few examples:

[USE A FEW EXAMPLES FROM EACH COLUMN OR OTHERS THAT MIGHT BE MEANINGFUL TO THE RESPONDENT.]

Crafts or cooking
physical fitness or aerobics
sports lessons like tennis or golf
Bible study

CPR
stress management
time management
childbirth classes

word processing
diversity training
communication skills

[IF APPROPRIATE] Could you think back for a moment to [REFER TO A RANGE OF MONTHS, SEASONS, OR INTERVALS BETWEEN HOLIDAYS TO PROBE 1 OR 2 TIME PERIODS.] Were you doing educational activities then?

	NEW COURSE NAME	WHEN TAKEN (MONTH/YEAR)
1.	_____	_____
2.	_____	_____
3.	_____	_____
4.	_____	_____
5.	_____	_____

NOT INTERESTED

When we first talked to you, you said you weren't really interested in taking (ESL classes/basic skills or high school completion classes/work-related courses). I'm wondering if you could explain a bit more about that.

[EXAMPLES:] What came to mind when we asked if you were interested?

Were you ever interested in taking some courses?

_-

NOT AWARE

When we first talked to you, you said you didn't know about any (ESL classes/basic skills or high school completion classes/work-related). I'm wondering if you could explain a bit more about that.

[EXAMPLE:] Have you ever tried to find out about courses you could take?

Did you ever think about doing that?

Date of original interview _____

BARRIERS

NONPARTICIPANTS:

When we first talked to you, you said you were interested in taking (basic skills or high school completion classes/ESL classes/work-related courses), but some things prevented you from doing this.

What was the main thing that prevented you from participating?

Was there anything else that made it hard for you to take courses?

[IF ONE OBSTACLE WAS CLEARLY THE MOST IMPORTANT, GO TO NEXT PAGE. IF TWO OR MORE THINGS SEEMED TO BE EQUALLY IMPORTANT IN PREVENTING PARTICIPATION:] What was the main thing that prevented you?

Now, I'd like to focus a little more on some (time/cost/child care/transportation) related problems that may have prevented you from taking courses.

If time was the major obstacle, go to A.
If money or cost was the major obstacle, go to B.
If child care was the major obstacle, go to C.
If transportation was the major obstacle, go to D.

A. Could you explain a little more about why **time** was a problem?

[INDICATE WHICH OF THE FOLLOWING WAS MENTIONED BY THE RESPONDENT AND TO WHAT EXTENT IT SEEMED TO BE AN OBSTACLE. PROBE IF APPROPRIATE.]

	Major	Minor	Not	N/A
Desire to spend time with family	1	2	3	4
Need to take care of family duties or chores around the house	1	2	3	4
Classes only offered during work hours	1	2	3	4
Work responsibilities prevent taking courses either during work hours or after work hours	1	2	3	4
Activities outside of work conflict with the time a class is offered	1	2	3	4
Time it takes to travel to and from class	1	2	3	4

B. Could you explain a little more about why **cost** was a problem?

[INDICATE WHICH OF THE FOLLOWING WAS MENTIONED BY THE RESPONDENT AND TO WHAT EXTENT IT SEEMED TO BE AN OBSTACLE. PROBE IF APPROPRIATE.]

	Major	Minor	Not	N/A
Amount of tuition and fees for classes	1	2	3	4
Cost of books and supplies for classes	1	2	3	4
The cost of child care	1	2	3	4
The cost of transportation	1	2	3	4

C. Could you explain a little more about why **child care** was a problem?

[INDICATE WHICH OF THE FOLLOWING WAS MENTIONED BY THE RESPONDENT AND TO WHAT EXTENT IT SEEMED TO BE AN OBSTACLE. PROBE IF APPROPRIATE.]

	Major	Minor	Not	N/A
The cost of child care	1	2	3	4
The availability of child care	1	2	3	4

D. Could you explain a little more about why **transportation** was a problem?

[INDICATE WHICH OF THE FOLLOWING WAS MENTIONED BY THE RESPONDENT AND TO WHAT EXTENT IT SEEMED TO BE AN OBSTACLE. PROBE IF APPROPRIATE.]

	Major	Minor	Not	N/A
The cost of transportation	1	2	3	4
The availability of transportation	1	2	3	4
The time it would take to travel to and from courses	1	2	3	4

Date of original interview _____

PROXY REPORTING OF PARTICIPATION STATUS

PROXY SWITCHERS:

When we called last time, (SCREENER NAME) answered a few questions about each member of your household and reported that you (did/did not) participate in educational activities in the past 12 months. However, when we talked to you, you said that you (did/did not) participate.

We want to know if we can improve our question to collect more accurate information about other members of the household.

The question we asked (SCREENER NAME) was, "During the past 12 months, did (RESPONDENT NAME) take classes, programs, courses, workshops, or seminars of any kind for any reason?"

1. Do you think (SCREENER NAME) knew about your educational activities when we asked the question?

YES 1

[IF YES, ASK:] Do you have any idea why (SCREENER NAME) said you (had/had not) participated?

RESPONSE: _____

NO 2

2. If I asked you whether other adults in your household participated or did not participate in classes or other education activities in the past 12 months, do you think you would know the right answer without checking with the person? [CODE BOTH YES AND NO, IF APPLICABLE.]

YES 1

[FOR A SPECIFIC HOUSEHOLD MEMBER, SPECIFY WHO] _____

NO 2

[IF NO FOR ANY HOUSEHOLD MEMBER, ASK AND CODE ALL THAT APPLY:]

Do you think you...

Would need some examples of educational activities to answer, ... 1

You would probably guess, or 2

You would say you did not know? 3

Can you think of any ways we could improve our question?

RESPONSE:

Date of original interview _____

CHANGES IN SELF-REPORT OF PARTICIPATION STATUS

SELF-SWITCHERS:

When we called you before, first we asked a question about educational activities. It was: "During the past 12 months, did you take classes, programs, courses, workshops, or seminars of any kind for any reason?" You told us at first that you (did/did not) participate in educational activities in the past 12 months.

Then we asked about different types of educational activities that you might have participated in, and you said that you (did/did not) participate in (one or more/any) of them.

Could you tell us what happened to change your mind?

[FOR THOSE WHO SWITCHED TO PARTICIPATION STATUS] Was there something in particular that we said that helped you remember?

Can you think of any ways we could improve our question?

Appendix B:

Training Guide

BIAS STUDY TRAINING AGENDA

1. **Overview**

   a. Brief explanation of the purpose of the study and the interviewing approach

      - *Improve questionnaire to collect better data;*
      - *Use conversational format to capture the perspective of the respondent;*
      - *Employ some specific techniques to see of there are better ways to get the information we are interested in.*

   b. Format of the training session

      - *Conversational; all should participate.*

2. **Background**

   a. The NHES:95 Adult Education component

      - *They are familiar; have instrument and manual; have heard interviews;*
      - *Recap major research purpose: How many adults participate in educational activities, what types of activities do they participate in (especially work-related), what keeps people who want to participate in educational activities from taking part?*
      - *Questions about education/work experience/language background; participation in or barriers to participation in ESL, ABE/GED, credential, apprenticeship, work-related, other formal, computer-only/interactive; background information.*

3. **Purpose of the bias study**

   Goal 1: To obtain a more accurate count of the type of courses taken during the 12 months preceding the original interview

   a. The issues of telescoping and difficulty of recalling participation in educational activities

      - *Spur of the moment request for information; better info by asking about specific types;*
      - *Recall over 12 months--telescoping*
      - *Want to know if some types of courses are over-reported*

   b. Population: participants in any type of educational activity--ESL, ABE/GED, credential (college, voc.ed), apprenticeship, work-related, other formal.

Goal 2: **To see if respondents recall courses now that they did not recall when we first spoke with them.**

a. Underreporting participation in educational activities during an interview because respondents were uncertain what we meant by educational activities

- *Giving them examples of types of courses may help them recall*
- *Also will use a technique to help them think back over the past 12 months*

b. Population: nonparticipants and participants

- *Participants in some types may have forgotten other types.*

Goal 3: **To understand better why low-education adults have no interest in taking courses, do not know about courses they could take, or have other obstacles that prevent them from taking courses**

a. The interest question

- *Can they articulate why?*

b. The knowledge question

- *Have they ever tried to find out?*

c. The accuracy of the barriers to participation that were asked in the interview

- *What prevents people who want to participate from participating?*
- *We want the respondent's own point of view, not influenced by ours.*

d. Population: participants and nonparticipants, but only low-education respondents

Goal 4: **To examine reasons for switching participation status**

a. "Proxy switchers" and the accuracy of reporting for other household members

- *Why might people know or not know about the educational participation of other household members?*

b. "Self-switchers" and aids to recall

- *What cues were helpful to their recall?*

c. Population: participants and nonparticipants who switched status

4. **Methodology: the semi-structured interview**

- *Balance between strict adherence to questions (same context) and a more conversational mode;*
- *Quantitative vs. qualitative;*
- *Using the more qualitative approach to assess the quality of the data gathered in the more quantitative approach;*
- *Our data quality will depend directly on our understanding of the research goals and our skill in eliciting the information required;*
- *Each topic in the protocol must be addressed, but followup probes will vary with the situation;*
- *Use of open ended probes:*
  "Could you tell me a little more about that?"
  "I'd be interested in your own words to describe that."
  "Is there anything else you'd like to add?"
- *Listening actively to the respondent; giving feedback when appropriate;*
- *Creative use of silences.*
- *Recording information: key words; maintaining interviewer-respondent interaction.*

5. **Overview of the protocol**

- *Constructed to achieve goals; customized according to participant.*

a. The timeline

- *A tool with multiple uses.*

b. Section-by-section through the protocol

- *Generating probes*
- *Recording responses*

6. *Role plays*

a. Participant (high ed) in work related and other formal
b. Nonparticipant (low ed), barriers to work-related
c. Participant in ABE/GED, no interest in work related, proxy-switcher
d. Nonparticipant (low ed), barriers to ESL, self-switcher
e. Participant (low ed) in apprenticeship, no interest in ABE/GED
f. Nonparticipant (low ed), no knowledge of ESL, proxy switcher

Appendix C:

Interviewer Handout

BIAS STUDY

Goal 1: To obtain a more accurate count of the type of courses taken during the 12 months preceding the original interview

Goal 2: To see if respondents recall courses now that they did not recall when we first spoke with them.

Goal 3: To understand better why low-education adults have no interest in taking courses, do not know about courses they could take, or have other obstacles that prevent them from taking courses

Goal 4: To examine reasons for switching participation status

Methodology: the semi-structured interview

-- *Balance between strict adherence to questions (same context) and a more conversational mode*

-- *Quantitative vs. qualitative*

-- *Using the more qualitative approach to assess the quality of the data gathered in the more quantitative approach*

-- *Our data quality will depend directly on our understanding of the research goals and our skill in eliciting the information required*

-- *Each topic in the protocol must be addressed, but followup probes will vary with the situation*

-- *Use of open ended probes:*
"Could you tell me a little more about that?"
"I'd be interested in your own words to describe that."
"Is there anything else you'd like to add?"

-- *Listening actively to the respondent; giving feedback when appropriate*

-- *Creative use of silences*

-- *Recording information: key words; maintaining interviewer-respondent interaction*

Appendix D:

Responses to Barrier Questions

CASE 1

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Major obstacle	Major obstacle
Take care of family duties or chores	Minor obstacle	Not an obstacle
Classes only offered during work hours	Minor obstacle	Not an obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Not an obstacle	Not an obstacle
Activities outside of work conflict with the time a class is offered	Minor obstacle	Not an obstacle
Time it takes to travel to and from class	Not an obstacle	Not an obstacle

---

CASE 2

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Minor obstacle	Not an obstacle
Take care of family duties and chores	Not an obstacle	Major obstacle
Classes only offered during work hours	Minor obstacle	Not an obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Major obstacle	Major obstacle
Activities outside of work conflict with the time a class is offered	Minor obstacle	Not an obstacle
Time it takes to travel to and from class	Minor obstacle	Not an obstacle

CASE 3

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Minor obstacle	Minor obstacle
Take care of family duties or chores	Not an obstacle	Minor obstacle
Classes only offered during work hours	Major obstacle	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Major obstacle	Major obstacle
Activities outside of work conflict with the time a class is offered	Not an obstacle	Major obstacle
Time it takes to travel to and from class	Minor obstacle	Not an obstacle

---

CASE 4

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Major obstacle	Major obstacle
Take care of family duties and chores	Major obstacle	Minor obstacle
Classes only offered during work hours	Not an obstacle	Not an obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Not an obstacle	Not an obstacle
Activities outside of work conflict with the time a class is offered	Major obstacle	Major obstacle
Time it takes to travel to and from class	Not an obstacle	Not an obstacle

CASE 5

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Major obstacle	Major obstacle
Take care of family duties or chores	Major obstacle	Major obstacle
Classes only offered during work hours	Not an obstacle	Minor obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Not an obstacle	Not an obstacle
Activities outside of work conflict with the time a class is offered	Minor obstacle	Not an obstacle
Time it takes to travel to and from class	Not an obstacle	Not an obstacle

---

CASE 6

	NHES:95	Bias Study
Main barrier	Cost	Time
Specific aspects of the main barrier		
Desire to spend time with family	Inapplicable	Not an obstacle
Take care of family duties and chores	Inapplicable	Not an obstacle
Classes only offered during work hours	Inapplicable	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Inapplicable	Major obstacle
Activities outside of work conflict with the time a class is offered	Inapplicable	Not an obstacle
Time it takes to travel to and from class	Inapplicable	Not an obstacle

CASE 7

	NHES:95	Bias Study
Main barrier	Other barrier	Time
Specific aspects of the main barrier		
Desire to spend time with family	Inapplicable	Not an obstacle
Take care of family duties or chores	Inapplicable	Not an obstacle
Classes only offered during work hours	Inapplicable	Not an obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Inapplicable	Major obstacle
Activities outside of work conflict with the time a class is offered	Inapplicable	Not an obstacle
Time it takes to travel to and from class	Inapplicable	Not an obstacle

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CASE 8

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Not an obstacle	Not an obstacle
Take care of family duties and chores	Not an obstacle	Not an obstacle
Classes only offered during work hours	Not an obstacle	Not an obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Major obstacle	Not an obstacle
Activities outside of work conflict with the time a class is offered	Not an obstacle	Not an obstacle
Time it takes to travel to and from class	Not an obstacle	Not an obstacle

CASE 9

	NHES:95	Bias Study
Main barrier	Transportation	Time
Specific aspects of the main barrier		
Desire to spend time with family	Inapplicable	Not an obstacle
Take care of family duties or chores	Inapplicable	Not an obstacle
Classes only offered during work hours	Inapplicable	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Inapplicable	Major obstacle
Activities outside of work conflict with the time a class is offered	Inapplicable	Not an obstacle
Time it takes to travel to and from class	Inapplicable	Not an obstacle

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CASE 10

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Not an obstacle	Minor obstacle
Take care of family duties and chores	Minor obstacle	Major obstacle
Classes only offered during work hours	Not an obstacle	Not an obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Not an obstacle	Not an obstacle
Activities outside of work conflict with the time a class is offered	Major obstacle	Not an obstacle
Time it takes to travel to and from class	Not an obstacle	Not an obstacle

CASE 11

	NHES:95	Bias Study
Main barrier	Transportation	Time
Specific aspects of the main barrier		
Desire to spend time with family	Inapplicable	Not an obstacle
Take care of family duties or chores	Inapplicable	Not an obstacle
Classes only offered during work hours	Inapplicable	Not an obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Inapplicable	Major obstacle
Activities outside of work conflict with the time a class is offered	Inapplicable	Not an obstacle
Time it takes to travel to and from class	Inapplicable	Not an obstacle

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CASE 12

	NHES:95	Bias Study
Main barrier	Cost	Time
Specific aspects of the main barrier		
Desire to spend time with family	Inapplicable	Not an obstacle
Take care of family duties and chores	Inapplicable	Not an obstacle
Classes only offered during work hours	Inapplicable	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Inapplicable	Major obstacle
Activities outside of work conflict with the time a class is offered	Inapplicable	Not an obstacle
Time it takes to travel to and from class	Inapplicable	Not an obstacle

CASE 13

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Minor obstacle	Major obstacle
Take care of family duties or chores	Minor obstacle	Minor obstacle
Classes only offered during work hours	Major obstacle	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Major obstacle	Major obstacle
Activities outside of work conflict with the time a class is offered	Minor obstacle	Major obstacle
Time it takes to travel to and from class	Minor obstacle	Major obstacle

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CASE 14

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Major obstacle	Not an obstacle
Take care of family duties and chores	Minor obstacle	Not an obstacle
Classes only offered during work hours	Major obstacle	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Major obstacle	Minor obstacle
Activities outside of work conflict with the time a class is offered	Minor obstacle	Not an obstacle
Time it takes to travel to and from class	Major obstacle	Not an obstacle

CASE 15

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Major obstacle	Not an obstacle
Take care of family duties or chores	Major obstacle	Not an obstacle
Classes only offered during work hours	Major obstacle	Minor obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Major obstacle	Not an obstacle
Activities outside of work conflict with the time a class is offered	Minor obstacle	Major obstacle
Time it takes to travel to and from class	Not an obstacle	Not an obstacle

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CASE 16

	NHES:95	Bias Study
Main barrier	Cost	Time
Specific aspects of the main barrier		
Desire to spend time with family	Inapplicable	Not an obstacle
Take care of family duties and chores	Inapplicable	Not an obstacle
Classes only offered during work hours	Inapplicable	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Inapplicable	Major obstacle
Activities outside of work conflict with the time a class is offered	Inapplicable	Not an obstacle
Time it takes to travel to and from class	Inapplicable	Not an obstacle

CASE 17

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Major obstacle	Major obstacle
Take care of family duties or chores	Minor obstacle	Minor obstacle
Classes only offered during work hours	Minor obstacle	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Not an obstacle	Not an obstacle
Activities outside of work conflict with the time a class is offered	Not an obstacle	Not an obstacle
Time it takes to travel to and from class	Not an obstacle	Minor obstacle

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CASE 18

	NHES:95	Bias Study
Main barrier	Time	Time
Specific aspects of the main barrier		
Desire to spend time with family	Not an obstacle	Not an obstacle
Take care of family duties and chores	Not an obstacle	Minor obstacle
Classes only offered during work hours	Major obstacle	Major obstacle
Work responsibilities prevent taking courses either during work hours or after work hours	Not an obstacle	Major obstacle
Activities outside of work conflict with the time a class is offered	Not an obstacle	Minor obstacle
Time it takes to travel to and from class	Not an obstacle	Minor obstacle

CASE 19

	NHES:95	Bias Study
Main barrier	Cost	Cost
Specific aspects of the main barrier		
Amount of tuition and fees for classes	Not an obstacle	Major obstacle
Cost of books and supplies for classes	Minor obstacle	Minor obstacle
The cost of child care	Inapplicable	Inapplicable
The cost of transportation	Major obstacle	Not an obstacle

CASE 20

	NHES:95	Bias Study
Main barrier	Cost	Cost
Specific aspects of the main barrier		
Amount of tuition and fees for classes	Major obstacle	Major obstacle
Cost of books and supplies for classes	Major obstacle	Major obstacle
The cost of child care	Inapplicable	Inapplicable
The cost of transportation	Minor obstacle	Major obstacle

CASE 21

	NHES:95	Bias Study
Main barrier	Cost	Cost
Specific aspects of the main barrier		
Amount of tuition and fees for classes	Minor obstacle	Major obstacle
Cost of books and supplies for classes	Not an obstacle	Major obstacle
The cost of child care	Inapplicable	Inapplicable
The cost of transportation	Minor obstacle	Not an obstacle

CASE 22

	NHES:95	Bias Study
Main barrier	Cost	Cost
Specific aspects of the main barrier		
Amount of tuition and fees for classes	Major obstacle	Major obstacle
Cost of books and supplies for classes	Major obstacle	Major obstacle
The cost of child care	Not an obstacle	Not an obstacle
The cost of transportation	Not an obstacle	Not an obstacle

CASE 23

	NHES:95	Bias Study
Main barrier	Cost	Cost
Specific aspects of the main barrier		
Amount of tuition and fees for classes	Major obstacle	Major obstacle
Cost of books and supplies for classes	Major obstacle	Major obstacle
The cost of child care	Inapplicable	Inapplicable
The cost of transportation	Minor obstacle	Major obstacle

CASE 24

	NHES:95	Bias Study
Main barrier	Cost	Child care
Specific aspects of the main barrier		
The cost of child care	Inapplicable	Not an obstacle
The availability of child care	Inapplicable	Not an obstacle

CASE 25

	NHES:95	Bias Study
Main barrier	Child care	Child care
Specific aspects of the main barrier		
The cost of child care	Major obstacle	Major obstacle
The availability of child care	Not an obstacle	Not an obstacle

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CASE 26

	NHES:95	Bias Study
Main barrier	Don't know	Child care
Specific aspects of the main barrier		
The cost of child care	Inapplicable	Not an obstacle
The availability of child care	Inapplicable	Not an obstacle

Listing of NCES Working Papers to Date

Number	Title	Contact
94-01	Schools and Staffing Survey (SASS) Papers Presented at Meetings of the American Statistical Association	Dan Kasprzyk
94-02	Generalized Variance Estimate for Schools and Staffing Survey (SASS)	Dan Kasprzyk
94-03	1991 Schools and Staffing Survey (SASS) Reinterview Response Variance Report	Dan Kasprzyk
94-04	The Accuracy of Teachers' Self-reports on their Postsecondary Education: Teacher Transcript Study, Schools and Staffing Survey	Dan Kasprzyk
94-05	Cost-of-Education Differentials Across the States	William Fowler
94-06	Six Papers on Teachers from the 1990-91 SASS and Other Related Surveys	Dan Kasprzyk
94-07	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
95-01	Schools and Staffing Survey: 1994 papers presented at the 1994 Meeting of the American Statistical Association	Dan Kasprzyk
95-02	QED Estimates of the 1990-91 Schools and Staffing Survey: Deriving and Comparing QED School Estimates with CCD Estimates	Dan Kasprzyk
95-03	Schools and Staffing Survey: 1990-91 SASS Cross-Questionnaire Analysis	Dan Kasprzyk

Listing of NCES Working Papers to Date (Continued)

Number	Title	Contact
95-04	National Education Longitudinal Study of 1988: Second Follow-up Questionnaire Content Areas and Research Issues	Jeffrey Owings
95-05	National Education Longitudinal Study of 1988: Conducting Trend Analyses of NLS-72, HS&B, and NELS:88 Seniors	Jeffrey Owings
95-06	National Education Longitudinal Study of 1988: Conducting Cross-Cohort Comparisons Using HS&B, NAEP, and NELS:88 Academic Transcript Data	Jeffrey Owings
95-07	National Education Longitudinal Study of 1988: Conducting Trend Analyses HS&B and NELS:88 Sophomore Cohort Dropouts	Jeffrey Owings
95-08	CCD Adjustments to the 1990-91 SASS: A Comparison of Estimates	Dan Kasprzyk
95-09	The Results of the 1993 Teacher List Validation Study (TLVS)	Dan Kasprzyk
95-10	The Results of the 1991-92 Teacher Follow-up Survey (TFS) Reinterview and Extensive Reconciliation	Dan Kasprzyk
95-11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
95-12	Rural Education Data User's Guide	Samuel Peng

Listing of NCES Working Papers to Date (Continued)

Number	Title	Contact
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95-14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
95-15	Classroom Instructional Processes: A Review of Existing Measurement Approaches and Their Applicability for the Teacher Follow-up Survey	Sharon Bobbitt
95-16	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17	Estimates of Expenditures for Private K-12 Schools	Steve Broughman
95-18	An Agenda for Research on Teachers and Schools: Revisiting NCES' Schools and Staffing Survey	Dan Kasprzyk
96-01	Methodological Issues in the Study of Teachers' Careers: Critical Features of a Truly Longitudinal Study	Dan Kasprzyk
96-02	Schools and Staffing Survey (SASS): 1995 Selected papers presented at the 1995 Meeting of the American Statistical Association	Dan Kasprzyk
96-03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
96-04	Census Mapping Project/School District Data Book	Tai Phan

Listing of NCES Working Papers to Date (Continued)

Number	Title	Contact
96-05	Cognitive Research on the Teacher Listing Form for the Schools and Staffing Survey	Dan Kasprzyk
96-06	The Schools and Staffing Survey (SASS) for 1998-99: Design Recommendations to Inform Broad Education Policy	Dan Kasprzyk
96-07	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
96-08	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-09	Making Data Relevant for Policy Discussions: Redesigning the School Administrator Questionnaire for the 1998-99 SASS	Dan Kasprzyk
96-10	1998-99 Schools and Staffing Survey: Issues Related to Survey Depth	Dan Kasprzyk
96-11	Towards an Organizational Database on America's Schools: A Proposal for the Future of SASS, with comments on School Reform, Governance, and Finance	Dan Kasprzyk
96-12	Predictors of Retention, Transfer, and Attrition of Special and General Education Teachers: Data from the 1989 Teacher Followup Survey	Dan Kasprzyk
96-13	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman


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