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ABSTRACT

A study focused on researchers' use of the English-Language Background Questionnaire (EBQ) portion of the National Adult Literacy Survey (NALS), the results of which were released in 1993. Data were gathered by surveying NALS data users about how they have used the EBQ data, their perspectives on the strengths and weaknesses of the EBQ, and their recommendations for changes to the EBQ. A content analysis was also conducted of published research papers that have involved analyses of the EBQ data to determine how the data were used in these research analyses. The study also drew upon recommendations garnered by a series of focus groups conducted by the American Institutes for Research in 1998. These sources were integrated with the study's own analysis of the NALS data. The following changes to the EBQ for future adult literacy assessments were recommended: expand the questions pertaining to educational experiences; expand the section on social and political participation or move the current items to other areas and delete this section; add an item on voter registration; acquire more detailed information regarding work history, wages, and parents' occupations; expand the section pertaining to literacy practices; and gather information on technological literacy practices. (Appendixes include 34 references; instruments; and studies examined for content review.) (YLB)

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Working Paper Series

Evaluation of the 1992 NALS Background Survey Questionnaire: An Analysis of Uses with Recommendations for Revisions

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Evaluation of the 1992 NALS Background Survey Questionnaire:

An Analysis of Uses with Recommendations for Revisions

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March 2000

This project was an activity of the Education Statistics Services Institute.

Table of Contents

Abstract

This report describes how social science researchers and other experts have analyzed data from the National Adult Literacy Survey (NALS) since the public release of the data in 1993 to serve a variety of educational, social policy and scientific purposes. The particular focus of our report pertains to researchers' uses of the English Background Questionnaire (EBQ) portion of the NALS. Our data were gathered by surveying NALS data users about how they have used the EBQ data, their perspectives on the strengths and weaknesses of the EBQ, and their recommendations for changes to the EBQ. We also conducted a content analysis of published research papers that have involved analyses of the EBQ data to determine how the data were used in these research analyses. Finally, we drew upon the recommendations garnered by a series of focus groups conducted by the American Institutes for Research in 1998. After integrating these sources with our own analyses of the NALS data, we recommend several changes to the EBQ for future adult literacy assessments. These are as follows: (1) expand the questions pertaining to educational experiences including adult basic education and other nonformal types of educational experiences; (2) expand the section on social and political participation or move the current items to other areas and delete this section; (3) add an item on voter registration; (4) acquire more detailed information regarding work history, wages and parents' occupations; (5) expand the section pertaining to literacy practices; and (6) gather information on technological literacy practices. We also recommend the following actions: (1) re-examine the issue of the unidimensionality of the literacy scales; (2) utilize Reder's Lifelong Learning Questionnaire for new items; (3) link the NAAL to the Adult Education Survey of the National Household Education Survey; and (4) collect data at multiple levels of the survey design.

The data for the National Adult Literacy Survey (NALS) were gathered over the first eight months of 1992. The first report summarizing the results of this largest-ever assessment of adult literacy skills was issued in September, 1993. The data were subsequently released in the public domain in 1994 by the National Center for Education Statistics (NCES). The data were therefore available for educational policymakers and planners; researchers in universities and research organizations; and experts in various fields such as assessment, labor economics, adult education, sociology, and political science to utilize for the purposes of secondary analyses. By making the data available to experts for analysis, additional findings, insights, and implications for policy, program development, and practice can be generated from the NALS and disseminated far beyond the capabilities of a single agency such as NCES.

Large-scale social science data, of the type obtained in the NALS, are useful for addressing a number of issues of interest to educators and social science researchers.

For example:

1. The scope and extent of adult literacy;
2. The ways in which literacy contributes to individuals' well-being, social involvement, and workplace performance;
3. The associations of various demographic variables such as age, gender, and educational attainment to literacy proficiencies; and,
4. The nature of observed differences in literacy skills and practices among the different racial, ethnic, age, and geographic groups throughout the United States.

The purpose of this report is to describe how social science researchers, educators, and policy experts have used the NALS data since the public release of the data in 1993 to serve a variety of educational, social policy and scientific purposes. The particular focus of this report pertains to the manner in which secondary analyses of the data have been conducted, particularly as these analyses have employed data from the NALS English-language Background Questionnaire (EBQ). Several issues are of interest to us, and we have attempted to address these in our investigation. We gathered information in two ways: (1) via a survey of identified NALS data users; and (2) through a content analysis of the published research papers pertaining to the NALS in which EBQ data were used.

We began by conducting a limited survey of several key personnel with expertise in either all or specific sections of the EBQ. An e-mail survey was sent to identified NALS data users to ascertain their perspectives on the adequacy of the data provided by the EBQ. The goal was to ascertain individuals' understandings and uses of these data and their recommendations—for gathering background data—based on their experiences using the data derived from the NALS background questionnaire.

The key issues resulting from our survey responses are reported here and integrated with information obtained from our content review of a small number of published studies (i.e., secondary analyses) of the NALS. The focus of our content review is to identify both the specific background variables used, and how these variables and analyses appeared to have either contributed to or limited the researchers' inferences and/or policy recommendations. Our assumption is that such information is important to the National Assessment of Adult Literacy (NAAL) survey designers and will ensure that critical questions are considered, which might then enhance researchers' and policymakers' abilities to draw meaningful conclusions and/or make policy recommendations.

We also weigh the relative advantages and disadvantages of adding items and modifying existing items on the EBQ. Any changes must, of course, be considered in light of the potential costs—in terms of real dollars and the sacrifice of useful data. Changing the EBQ may, for example, impede comparisons and trend analyses for the 1992 and 2002 adult literacy assessments. While it may be possible to create a parsimonious set of background questionnaire items that provide essential information and allow strong inferences about adult literacy, this must be accomplished within the parameters of minimal administrative and data management costs and advantages to data reporting.

The 1992 NALS English-language Background Questionnaire contained six "content areas" enabling the collection of information on survey participants': (1) general and language background; (2) educational attainment and experiences; (3) political and social participation; (4) labor force participation; (5) literacy activities and collaboration with others, and, (6) demographic information. These data were deemed by the NALS developers to be important for the purpose of "[gaining] an understanding of the ways in which personal characteristics are associated with demonstrated performance" on the three NALS literacy proficiency scales—prose, document, and quantitative literacy (Kirsch, Jungeblut, Jenkins, and Kolstad, 1993, 5). Adult literacy researchers and policy analysts vary in their areas of expertise in relation to these

components of the EBQ, and they utilize the data in different ways in order to address questions of interest to themselves and/or to their organizations, institutions, or sponsors. Thus, we attempted to obtain a diverse sample of NALS data users and analysts.

Identification of NALS Data Users

NCES has a NALS Web site that contains a link to a list of NALS "data users" (http://nces.ed.gov/naal/naal92/users.html). This list, dated May 16, 1996, consists of 70 names of individuals (including the first author of this report) who are academic researchers, policymakers and analysts for public and private research firms and agencies, journalists, and other experts. The listed individuals are those who had requested a copy of the data files on diskette from NCES. Because individuals were able to download the data directly from the Web site as of mid-1996, it was not possible to maintain a more up-to-date file of data users (A. Kolstad—personal communication, May, 1998). We attempted to contact as many individuals on this list as possible to gather information regarding their uses and analyses of the NALS data. Our primary method for contacting individuals was through e-mail (addresses were available for 58 persons on the list, 83 percent). Several of these addresses were invalid, however, so we then attempted to obtain up-to-date e-mail addresses and phone numbers.

An additional, updated, list of 11 names of NALS data users was also provided to us through Andrew Kolstad at NCES. We received replies from two persons among this subgroup, one of whom reported not having used the data for statistical analyses due to its complexity. A few of the individuals that we surveyed also referred us to other researchers with whom they had collaborated on their NALS studies. We were then able to complete one additional telephone interview. We attempted to contact, via e-mail, the state-level directors of adult education in each of the states that had conducted NALS state-level assessments. Although we did not expect that this latter group would have conducted analyses of the NALS data, they could presumably refer us to statisticians and policy analysts on their staffs who had done so. Our total population of identified "NALS users" equaled 94 persons.

Because the authors of this report have conducted analyses of the NALS data, resulting in one published research paper, another research report that is now in press, and five paper presentations at national conferences, we are familiar with several other researchers who have analyzed the NALS data. The

first author of this report has also edited a book on the NALS that contains seven chapters by individual investigators that describe secondary analyses of the NALS data. Also, the first author has reviewed other research papers based on the NALS. Therefore, the authors of this report are reasonably well informed about the body of scholarship based on the NALS that has been produced over the past five years. However, because it would be presumptuous to assume that we are aware of *all* research pertaining to the NALS, we conducted an electronic database search of educational and social science literature to determine and locate all published research papers based on the NALS. The electronic search revealed two additional empirical studies employing the NALS data—one of which used the EBQ variables.

Finally, we sent a request to the National Literacy Advocacy (NLA) electronic listserv in order to notify NALS data users whom we may have overlooked. The purpose of the NLA listserv is to provide information about issues affecting federal legislation, policy, and funding for literacy, basic and secondary education and English for Speakers of Other Languages. Thus, it is a particularly useful resource for policymakers and program providers in the adult literacy field. Our message to the NLA listserv read as follows:

> I am preparing, along with my colleague Janet Sheehan-Holt, a report pertaining to the various uses of the 1992 National Adult Literacy Survey by adult literacy experts—particularly in regards to the Background Survey (i.e., language background of respondents, educational background and experiences, labor force and social participation, literacy activities, demographic information). The purpose of the report is to recommend changes in the Background Survey for the planned National Assessment of Adult Literacy (NAAL) in 2002. We are particularly interested in any secondary descriptive or inferential analyses of the NALS as conducted by policy experts at the federal and state levels, academic researchers, and others.
>
> Although we have identified a number of individuals who have conducted, and subsequently published such analyses, we want to make sure we haven't overlooked anyone. If you have used the NALS Background Survey data for secondary analysis, we would like to include you in our sample. Please contact us by email (mcsmith@niu.edu) or telephone (815) 753-8448 for more complete information. We have a very brief survey that can be completed via email.

Unfortunately, we received only one response to this message. We re-posted our request to the NLA listserv on May 1st, 1999, to further canvass NALS data users, but received no responses. We believe that this lack of response is largely due to the fact that many NLA subscribers are directors of adult literacy programs rather than researchers. As such, these individuals are most likely to refer to the NALS *results*—rather than to conduct analyses of the data—to educate their respective communities about the need for adult literacy

education, and to justify their funding requests in order to raise funds, increase services, and improve service delivery.

Survey

Our initial e-mail query (see Attachment A) identified the purposes of our project, and asked individuals to respond briefly to three questions, including their willingness to complete a second brief survey via e-mail or by telephone. Through this method, we received replies from about one-third of the identified NALS users (n=30). Sixteen of these persons indicated having used the NALS data for secondary analyses (in addition, two persons used state-level data and a third used NALS data to replace missing data for the International Adult Literacy Survey; the two authors of this report have, of course, also used the NALS for secondary analyses) and nine had not conducted any data analyses. All of those who responded to our initial survey, and who have analyzed the NALS data, agreed to respond to the second part of our survey.

The purpose of the second part was to determine (1) the specific sections of the EBQ of greatest use to these researchers, (2) the specific questions of interest to their research, and (3) their perspectives on the relative strengths and weaknesses of the EBQ for making strong inferences from the data to populations and subgroups of interest to them. Upon affirmation that a respondent would complete the second part of the survey (see Attachment B), it was sent via e-mail to those individuals—with two exceptions. These persons were either interviewed over the phone or face-to-face.

Published Research Reports

We identified more than a dozen research papers that have been published in the scientific literature (i.e., journals), or are currently in press, or are contained in the aforementioned edited book (Smith 1998). All of these reports are based upon secondary analyses of the NALS data (see Attachment C). Three of these papers involve primarily descriptive analyses examining particular populations (e.g., community college students). The remaining reports are largely based on inferential statistical analyses. Two book chapters (see Finn and Gerber 1998; Howard and Obetz 1998) are essentially summaries of studies published as journal articles (Gerber and Finn 1998; Howard and Obetz 1996). In these cases, we examined the journal articles. In another case, a chapter summarized a previously published study (see

Smith 1996), but also reported the results of a second analysis that had not been previously reported (see Smith and Sheehan 1998). Also, Pryor and Schaffer have reported utilizing or referencing the NALS data throughout their book (Pryor and Schaffer 1999) to support their claims pertaining to associations between education and literacy, and employment and earnings. The NALS data were not the primary data source for their book, however. We examined a research report by Pryor and Schaffer (1997) in which they conducted secondary analyses of the NALS data.

Unpublished NALS Reports

Our database search also revealed that there are an additional fifty-five reports pertaining to the NALS that are available through the Educational Resources Information Clearinghouse (ERIC) document retrieval service. These ERIC documents include: the original executive summary of the NALS (Kirsch et al. 1993); various state-level reports prepared by the Educational Testing Service; state, local and national estimates of literacy; literacy performance of various populations (e.g., older adults, prisoners); essays on the state of adult literacy; and, methodology and technical papers pertaining to adult literacy assessment. These reports were not used in our analyses; however, as they involved descriptive reporting of data directly from the NALS results and/or the NALS Executive Summary, rather than original analyses of the NALS and, in particular, the EBQ data.

Researchers' Uses of the EBQ Data

Because our analysis of uses of the EBQ data is largely a qualitative one, we will refer to respondents to our survey as "informants" in order to avoid confusion between NALS sample respondents and those persons who completed our survey. Slightly more than one-third of the informants (11 of 30) from our initial survey indicated the specific sections of the EBQ that they utilized in their data analyses (e.g., general and language background, educational background, demographic information). As might be expected, there was slightly greater focus on the items pertaining to NALS respondents' educational background and experiences. However, five researchers reported having used data from all sections of the EBQ; others' analyses have been limited to two, three, or four sections only (e.g., political and social participation, literacy activities and collaboration), depending upon the particular questions posed in their research.

The second part of our e-mail survey asked informants to identify the research questions of interest to their studies. Further, we asked that they indicate how the EBQ items strengthened their ability to draw inferences from the data, how the items may have limited such inferences, and what items or sections should be revised or dropped for the NAAL. Eleven individuals completed our second survey via e-mail or were interviewed in person or on the telephone.

Survey Results

A few individuals responded to our initial inquiry and identified themselves as employees of state divisions or adult education programs; a few others were policy analysts for various social or political action and lobbying groups (e.g., the American Association for Retired Persons (AARP)). None of these persons reported having conducted inferential analyses of the NALS data, and so were not included in the second part of our survey. All of our survey responses were from individuals who are social scientists of one sort or another (e.g., educational researchers, economists, methodologists), and we therefore limited our analysis to those researchers who have conducted secondary inferential analyses of the data.

We will identify the issues and concerns identified by these informants regarding their analyses and interpretations of the EBQ data and summarize their comments as they pertain to each of the six content areas of the EBQ. Unless otherwise noted, these comments are based upon our survey informants' responses, rather than our own perspectives and views.

Section A: Language Background

This first part of the EBQ consists of 17 items that obtain information on NALS respondents' acquisition and usage of English. Only one comment was obtained regarding the characteristics of this portion of the EBQ. It was suggested that English language proficiency, rather than what people can do in other languages—such as Spanish—should remain the focus of the NAAL. . We are aware that there has been some attention devoted to a Spanish-language version of the NALS (Solorzano 1994). Reynaldo Macias, a member of the NALS literacy definition and technical review committees, was lead author on the language minority report, which is in draft final form with the American Institutes for Research (R. Macias—personal communication, February 11, 1999). Two new variables—bilingualism and biliteracy—were advocated in this report to draw attention to the fact that many individuals—particularly immigrants—

may be literate in more than a single language (English), or not literate in English but literate in their native language (e.g., Spanish) or other languages not assessed by the NALS. It appears likely, however, that assessment of English language skills will continue to be the focus of the NAAL.

It is our observation that the format of the language background portion of the EBQ may be confusing for NALS respondents—particularly the contingency questions (i.e., items #A-6, #A-7, #A-8, #A-9, #A-10) and the content of the hand cards. We have found, in our analyses, that it would be helpful to have an item that simply asks, "what is your primary language?" We will have more to say on this, and other issues, in the Recommendations portion of this report.

Section B: Educational Attainment and Experiences

This part of the EBQ has 14 items that obtain information about NALS respondents' educational histories. A few of the informants to our survey suggested that there is a need for additional questions pertaining to educational and demographic variables. We will summarize their comments in the remainder of this section. A few informants indicated that more questions about previous educational experiences would be helpful. The item that indicates "some college" for educational attainment (i.e., items B-1, options G, H, and I), for example, is too vague; many more people have "some college" experience or credit hours than have a degree, and more needs to be known about these individuals' educational histories. Exactly how much is "some college" experience, in terms of credit hours earned or years of schooling completed? It seems important to be able to quantify the varying amounts of college experience that respondents indicate; knowing these amounts would allow for better comparisons to high school graduates who have some technical school experience or a certificate, college graduates, and others.

While it was possible to find data to describe the prose, document, and quantitative (PDQ) literacy of community college students, it was not possible to provide sound reasons why these students' literacy proficiencies were at given levels. Several persons noted that the data on prior educational experiences, for example, were limited. Many college students are assigned to remedial courses, which are presently of much interest to educators. (See Breneman and Harlow 1999.) More specific information about respondents who are or were in remedial education would be helpful, according to one informant. Focusing on "highest education achieved" does not allow one to study those who were enrolled in community colleges. Just as the

NALS considers literacy as a continuum, educational attainment should also be viewed along a continuum, thereby avoiding distinctions about education. When the focus is only on the highest degree or educational status, this disregards the multiple and interacting factors that contribute to educational achievement. One informant indicated that more detailed information about NALS respondents' educational background and experience would be very useful—particularly at the state level. For example, if a high school diploma was awarded, was it earned in regular or special education? Given the large percentage of individuals scoring at the two lowest proficiency levels, it is reasonable to expect many of these persons to have been recipients of special education services.

Other types of credentials earned outside of formal education might be useful to know as well. This suggestion was made by a few informants—in particular, those who examined relationships between education, work, income, and literacy. These credentials could include craft apprenticeships and the like, which include the acquisition of skills that may be valued in the marketplace, but do not result in a degree or diploma, and may or may not lead to any kind of certification. NALS respondents' participation in various forms of adult education would be very useful information for researchers, given the meteoric rise in participation rates over the past decade.

Another informant commented that there was a need for more data on learning-disabled (LD) adults within the population. According to this person, some data suggest that as much as 17 percent of the U.S. population may have one or more learning disabilities. Those individuals at NALS proficiency levels 1 and 2, who have been the subject of most concern to politicians, policymakers, and adult educators, are the most likely to have a learning disability (and to have been in special education) (Vogel and Reder 1998b). Therefore, a revised EBQ should have an increased focus on assessing the presence of LD within the U.S. adult population, according to one informant.

A question of particular interest concerns how these individuals' learning disabilities were diagnosed. Diagnoses of LD may be done by psychological (e.g., school psychologist) or medical experts, and the type of diagnosis will largely determine the LD treatment or intervention. It would be useful to know when the LD diagnosis occurred (e.g., age and/or grade level), if the respondent received any special education services while in school, their knowledge of the Americans with Disabilities Act (ADA), and if they had requested any school or workplace accommodations based upon ADA guidelines. Other questions

of interest regarding the LD population include: the impact of LD on employment; how respondents compensate for their learning disabilities in regards to literacy and work; and how the learning disabilities impact their personal lives.

Another informant reported that the educational background and experiences data were very helpful to them in understanding the results—particularly at the state level—with regard to the association of educational attainment with literacy outcomes. A few others, on the other hand, suggested the NALS state-level data are very limited, and considered it best to use the national data for analyses and reporting.

We suggest that two questions regarding educational attainment would help to clarify matters pertaining to educational achievement. One question should ask for the number of years of school completed. The second question should ask for the highest degree earned. We will address, in a subsequent section of the paper, what we view as the limitations of the EBQ regarding the items pertaining to NALS respondents' participation in basic skills education. Suggestions for increasing the validity of these items will be provided.

Section C: Political and Social Participation

This portion of the EBQ consists of only four items that pertain to sources for obtaining information, television viewing, use of libraries, and voting. One informant referred to the lack of a question related to voter registration. The 1985 Young Adult Literacy Survey (YALS) (Kirsch and Jungeblut 1986) contained questions regarding both registration and voting, which allowed for modeling of voting behavior after controlling for the non-random selection of respondents (i.e., respondents can't indicate "yes" to voting without being registered to vote). Those who register are not a random sample of the population of those persons who are eligible to vote on basis of age and citizenship. Also, items pertaining to NALS respondents' involvement in different volunteer and civic activities (aside from voting) would be informative, and might provide additional insights about literacy practices.

Combining the few items from this section of the EBQ with other sections may be worthwhile. For example, two items (#C-1, "how much information do you get from..." and #C-3, "how often do you use the services of a library...") are directly relevant to literacy practices and could be included in the section of the EBQ that assesses such activities.

Section D: Labor Force Participation

The fourth section of the EBQ consisted of 12 items that gathered information about the type and extent of NALS respondents' occupational activities and income. An informant noted that there were no questions asked about the occupations of the parents of the NALS respondents. Because parents' occupations will have some impact on the educational opportunities available to children, influence the kinds of literacy practices to which their children may be exposed, and provide models for participation in the world of work, it is important to determine parents' primary occupations. Such an item could be included in the Demographic Information section of the EBQ. Also, it is critical to know respondents' hourly wage rate. This information can be discerned from responses to items #D-3, #D-4, #D-7, and #D-8, but a single item which obtains this information would be useful, according to one informant.

Another informant indicated that there is a need for good variables pertaining to income, but the relevant issues were somewhat different for this individual. According to this informant, it would helpful for individual states to know, from among those respondents who are receiving welfare benefits, the categories of welfare benefits received, e.g., food stamps, medical assistance, and/or cash assistance. Some interesting analyses might emerge from such data—at a basic level, it would be possible to determine the literacy proficiencies of individuals receiving various levels and types of welfare support. This information may have some important policy implications, particularly with respect to "welfare-to-work" initiatives. If, for example, those at the lowest PDQ levels are receiving the highest levels of welfare benefits, this may indicate that these persons are least likely to be able to enter the workforce without substantial basic education training.

One informant, an economist, noted that "the data are extremely useful for economic analysis," but would have found it more fruitful to have additional questions about the work history of the individual—the pattern of their previous employment and/or unemployment, how much they earned over each of the past five years, and what occupations they have held. A similar point was raised by a second economic analyst. Such information would allow for analyses of the impact of education on job mobility, according to both of these informants.

Section E: Literacy Activities and Collaboration with Others

This portion of the EBQ contained only six items regarding NALS respondents' uses of different kinds of text sources, such as newspapers and documents. A number of comments pertaining to this section of the EBQ were garnered and it appears that the information resulting from these items has been widely used. We have, of course, used the literacy practices data extensively in our studies (Sheehan-Holt and Smith in press; Smith and Sheehan 1998; Smith 1996). We therefore have several issues and concerns about the literacy practices items on the EBQ. While we will describe the issues more fully in a subsequent section of this report, we will briefly mention a few concerns here. First, the EBQ format pertaining to newspaper reading did not allow for a straightforward quantification of the amount of reading. Second, the item pertaining to book reading did not allow for estimates of the number of books read within given categories.

Technology use has dramatically increased in both the workplace and in the home since the NALS was carried out in 1992. For example, the advent of the World Wide Web on the Internet, and its consequent availability to the mass public, has resulted in millions of Americans going "online" for information, education, commerce and entertainment. How, then, does computer and other technology use impact adult literacy skills and practices? What technologies are used and how frequently? What impact does technology use have for adults with learning disabilities? How do other media, e.g., listening to books on tape or viewing instructional videotapes to improve language or literacy skills, impact literacy? Thus, there is an expressed need for items that pertain to uses of electronic communications, computers, and other technologies for literacy uses and practices.

An informant very familiar with the NALS development and the resulting data argued that there is a need for much greater detail regarding literacy practices. By asking respondents to provide specific examples of the typical, routine or daily literacy practices in which they engage, for example, this kind of information can help to validate their self-reports on literacy activities. It is critical for educators, researchers and policymakers to know what kinds of text materials adults use and the kinds of literacy tasks in which they typically engage.

Perhaps even more relevant, according to this informant, is to determine the literacy tasks that adults face in specific settings and situations. For example, it is likely that, in most literacy situations, people must utilize two, three or more kinds of materials. They not only have to use these materials to accomplish the task(s) at hand, but they have to decide how to use this text or that one and often must gather information from multiple—and sometimes conflicting—sources. The EBQ does not capture this kind of real-life complexity of literacy tasks. This informant suggested that efforts be made to determine the nature and types of challenging literacy tasks that people face by surveying about 10 percent of the NALS sample. A diary for recording daily reading and writing activities might work well for this purpose (Anderson, Wilson, and Fielding 1988). This approach would result in a better understanding of how well people can accomplish more difficult literacy tasks and activities.

Another informant suggested that a revised EBQ should not contain the detailed question (item #E-2) pertaining to which sections of the newspaper are read (e.g., main news, financial and editorial pages, sports). However, because newspaper reading is the most pervasive and common reading activity among adults (nearly 9 out of 10 adults read a paper on a regular basis; Smith 1996), it is important to know as much about this particular reading practice as possible. Newspaper reading may be among the most fundamental behaviors for individuals to obtain information about a wide variety of topics and issues (e.g., politics, sports, finance, community development, parenting, entertainment activities) in a relatively simple, easy and accessible manner.

Others suggest that, rather than eliminating items from the EBQ, it is very important to retain the literacy practices items. These items are important for determining what individuals with low education attainment and low literacy proficiencies are doing with the literacy skills they possess. Another informant, who has worked extensively on the International Adult Literacy Survey (IALS) described several dimensions of literacy practices that pertain to (1) the incidence and frequency of these activities; (2) the criticality of the practices; and (3) their complexity or challenge to the reader. At best, the NALS background questionnaire only captures the incidence and frequency of practices. Research by the first author (Smith in press) examined the reading practices among a sample of 150 adults and illustrated that it is essential to obtain the kinds of information called for above in order to more fully understand adults' motivations for reading, how they respond to demands for literacy, and the nature of these demands (see

also, Kirsch and Guthrie 1984). It might be possible, for example, to obtain more extensive reading practices data among a sub-sample of NALS respondents in future surveys, as suggested above. We will return to this issue when we discuss our recommendations for the next generation EBQ.

Two informants suggested the need for a cleaner distinction between job literacy and social literacy practices (i.e., personal reading practices outside of the workplace), as these are likely to be motivated by different demands, require different text sources and result in very different outcomes and satisfactions for individuals. A more extensive assessment of literacy activities on the job, in the home, and in adult education settings would be very useful.

Section F: Demographic Information

The final part of the EBQ contained 13 items that gathered information on NALS respondents' marital status, gender, family and personal income, racial/ethnic identity and age. We obtained few comments from our survey respondents in regards to this section of the EBQ. Generally, these data were used for descriptive purposes in the various secondary analyses conducted by researchers (e.g., age and racial group differences in reading practices), and were widely used by nearly all of those who conducted secondary analyses of the NALS data.

General Comments

Several comments and suggestions were of a more general nature and did not pertain to specific content categories within the EBQ. We will summarize those comments here.

One informant remarked that, in those cases where specific background items had very few respondents within a category, then the sample is obviously too small to make any meaningful inferences. Further, while in some cases, smaller groups can be combined for data analyses to allow inferences, this approach lacks the level of precision needed for adequate data interpretation. Two informants noted that, overall, the design of the EBQ is weak (but offered no information about specific weaknesses of the design) and one of them suggested that a short form of the literacy assessments (either combining PDQ into a single scale or simply using one scale such as Prose) could be used for the NAAL 2002. Obviously, Reder's (1998b) analyses, which indicated that the three literacy scales are highly correlated with one another ($rs \geq .93$), is relevant here. A more extensive EBQ could be developed and used to obtain more detailed

background information. However, another informant indicated that it is unnecessary to add items to the EBQ. If anything, make it shorter and easier to complete in order to save time and money. A larger sample could then be obtained. Finally, one informant suggested that a much more extensive background questionnaire based on the Young Adult Literacy Survey (Kirsch and Jungeblut 1986) is needed for the NAAL.

Summary

We obtained complete surveys via e-mail, on the telephone and in person from eleven individuals who have employed the literacy proficiencies (PDQ) data from the National Adult Literacy Survey (NALS) and various data from the NALS English Background Survey in their investigations of adult literacy. The purpose was to ascertain the following: how these social scientists have used the EBQ data in their analyses; how the relative strengths and weaknesses of the data have enhanced or hindered their research questions and policy recommendations; and, how their suggestions for changing the EBQ to create an instrument (and resulting data) would be more useful to the NAAL 2002.

It is clear that, although the numbers of individuals who have utilized the NALS EBQ data for inferential analyses is very small (in contrast to other national databases, such as the NELS:88 which has resulted in hundreds of studies over the years), the NALS data have been extensively used by these researchers. It is not clear, from our analysis, how extensively the data have been used by those who are not social science researchers but who nonetheless have a significant stake in adult literacy—local and state directors of adult literacy programs, for example, or community leaders and politicians, policy analysts, and leaders of business and industry. Anecdotal evidence, however (Smith and Reder 1998), suggests that uses of the data by these persons is restricted to descriptive summaries and does not involve detailed, inferential analyses of any EBQ data. It would be interesting, and useful, to learn more about how persons in these positions have utilized the NALS data to suit their needs and the needs of their constituents.

The informants to our survey indicated use of the NALS EBQ to address a wide variety of questions and concerns. They also indicated that, while the EBQ has several virtues, there are nonetheless significant problems and limitations of the data derived from the EBQ. A number of suggestions regarding changes to the next generation EBQ were offered with the goal of gathering more useful and informative

data that enable stronger inferences. These suggestions pertain to all sections of the EBQ and primarily called for increasing the number of items to obtain additional and more detailed information.

In the next section of this report, we describe our review of the relevant NALS studies that have utilized the EBQ data. For the most part, these studies were peer-reviewed prior to publication in a variety of professional journals. A few reports are book chapters; one is a technical report submitted to the National Center on Adult Literacy.

Content Review

As indicated above, several studies that involve secondary analyses of the NALS data have appeared in the social sciences literature. We conducted a content review of the empirical reports that utilized specific EBQ variables in the analyses. Our approach was to evaluate the researchers' abilities to make strong inferences from these data, based on the results of their analyses and interpretations of findings.

We examined the research questions for each paper, the methodology employed, the relevance of the NALS data to the research questions (based either entirely or in part on NALS), the specific sections of the EBQ and specific items used for the analyses, and the results coupled with researchers' interpretations of their findings.

Criteria

The following general criteria were used to review these studies:

1. Is the research method appropriate to address the research questions?
2. To what extent do the EBQ data allow for strong inferences on the investigators' part?
3. How did the strengths or weaknesses of the EBQ data affect the researchers' policy recommendations (if any)?

Review of Studies

Fourteen studies, in which various portions of the EBQ data were employed in the researchers' analyses of adult literacy, are reviewed. The papers are, for the most part, described in alphabetical order (by author). Friedman and Davenport (1998) examined gender differences in NALS literacy proficiencies, by age, educational attainment, and racial/ethnic groups. The research objective posed by the authors was a

general one—to explain patterns of gender differences in literacy performance, taking into account age and ethnicity. The NALS was the only data source for this investigation, and the EBQ data were important to the study. T-tests were used to compare males and females overall, and then separately for different age and ethnic groups represented in the sample. The relevant EBQ section pertained to respondents' demographic information (age and race/ethnicity).

There were significant gender differences among the 40-54 year old adults and those aged 65 to 80 on Quantitative literacy only. There were a few gender differences on Quantitative literacy for whites only (for ages 40-54 and 65-80, favoring males). The researchers were able to make reasonably strong inferences from the data by examining differences among the age and racial/ethnic groups. They did not, however, take advantage of the large array of control variables in the NALS. In fact, they stated that the purpose of their study was to focus only on the variables that have been previously examined in the research literature. Their data analytic approach was exploratory in nature (i.e., they used the first plausible value for each PDQ variable, rather than the plausible value methodology proposed by Mislevy, Johnson, and Muraki 1992). Descriptive statistics were used to discuss differences among age cohorts.

Friedman and Davenport concluded that educational attainment accounted for most racial/ethnic differences in literacy proficiencies, and that, as a nation, we are "doing better" at educating racial and ethnic minorities. In regards to gender, young women's performance on the NALS illustrates the strides that females have made in academic achievement in recent decades. They also claim that the NALS results illustrate that cultural, rather than genetic, factors account for gender differences. No policy recommendations were made regarding methods to further close the "gender gap" in literacy.

Gerber and Finn (1998) examined the relationship of literacy practices at both school and work with document proficiency. They note the discontinuity between work and school literacy and ask: (1) to what extent is document proficiency related to schooling? and, (2) to what extent are document skills acquired in the workplace? This study was based entirely upon the NALS data and the EBQ data were highly relevant. Information from the following EBQ sections was necessary to conduct their analyses: (1) educational background; (2) labor force participation; (3) literacy activities; (4) language background; and (5) demographic information. Tests of mean differences and multiple regression analyses were performed, and descriptive statistics were used to address the research questions. Gerber and Finn found, first, that

schooling is associated with better performance on document-related tasks, as adults with more education outperformed those having less education. Second, those who learned to read documents at work had at least as high a proficiency in document literacy as those who learned at school and in the community. Third, they found that reading documents at work is significantly associated with document literacy performance. Those adults who engaged in high levels of practice with work documents had the highest document literacy scores. Also, type of occupation is significantly related to document literacy skills. Higher-level occupations (e.g., professionals, managerial, technical, sales, and clerical) had higher document scores than lower-level occupations (e.g., service workers, farming, laborers).

Their findings illustrate that the workplace provides a context for adults to acquire document literacy. Thus, both school and the workplace are important contexts for literacy development. The workplace may, in fact, be a suitable alternative learning environment for many individuals (e.g., high school dropouts), although further research is needed to examine this hypothesis. Gerber and Finn were able to answer their research questions and their use of the EBQ data was very appropriate. They were able to make strong inferences regarding the relationship between workplace reading practices and document literacy proficiency. These findings led them to suggest that employers may need to be more proactive in creating on-the-job educational opportunities—for their workers—which has several implications for workforce policy development and workplace literacy programs.

Greenberg, Swaim, and Teixeira (1995) analyzed workforce literacy among rural adults in contrast to urban adults, and also examined differences by age, educational attainment, race/ethnicity, and region of the country. Comparisons on PDQ scores were made by metropolitan areas (e.g., central city, suburban, medium, small) and non-metro, rural areas (classified as either urban-adjacent, urban-nonadjacent, or totally rural). Greenberg et al. were able to distinguish levels of urbanization because they could identify the county of residence for each NALS respondent. Literacy levels of rural (nonmetro) adults vary widely, but are quite low, on average (specifically, near the upper end of Level 2).

Greenberg et al. analyzed the literacy skills of rural and urban adults in order to determine the extent to which rural workers are able to compete economically with urban workers. Because there is a difference between urban (metro) and rural (non-metro) workers on literacy, this gap suggests that most

rural areas have a workforce literacy problem—only 19 percent of rural adults were found to score at levels 4 and 5 on prose literacy.

Greenberg et al. regressed individual literacy scores on either a dummy variable for metro county or five dummy variables for the most highly urban county types along an urban-rural continuum. The resulting coefficients measured the extent to which mean literacy is higher for more urban counties than in the most rural counties (i.e., what they referred to as "the rural literacy gap"). Next, they re-estimated these models using 33 independent variables measuring factors such as age, gender, marital status, education, parents' education, race, ethnicity, native-born speaker of English, and region of country. Thus, data from the demographic section of the EBQ was particularly vital for these analyses. This modeling approach allowed the researchers to examine the impact of each of the independent variables on literacy, while holding other characteristics and urbanization constant. The authors also tested the interaction of the rural/urban variables with each of the 33 control variables. The resulting model coefficient provided an estimate of how each characteristic either widened or narrowed the rural gap in average literacy.

Greenberg et al. used similar regression techniques to investigate the effects of literacy on employment status and earnings. They regressed individual employment status on literacy scores using 24 control variables for labor market experience, gender, marital status, education, race/ethnicity, native-born speaker of English, region of country, and metro residence, among others. Greenberg et al. wanted to know what the most important demographic characteristics that depress literacy in rural areas are, and if these variables are amenable to policy interventions. Also, they wanted to determine whether there are any advantages to literacy for rural-dwelling adults. Higher age and lower education were found to contribute to lower literacy levels. The labor market rewards for literacy (e.g., income) are much lower in non-metro areas than in metro labor markets. Therefore, the demand for workers with good literacy skills is less in rural than it is in urban areas. Lower economic rewards for literacy in rural areas tend to depress literacy because individuals have less incentive to develop these skills; those with higher literacy skills go to urban area jobs, according to Greenberg et al.

The researchers were able to make strong inferences from the data by employing a large number of background characteristics as control variables. They noted that it was very important that the county of residence was given, since this information was essential to determining the level of urbanization. The

researchers made some suggestions for rural education policy and closing of the wage gap for high-literate rural workers. The study illustrates the need to prepare the rural workforce to meet the increasing literacy demands of the workplace in both urban and rural settings. From a methodological standpoint, using a great variety and number of background variables derived from the EBQ was a particular virtue of the study, and strengthens the researchers' inferences.

Howard and Obetz (1996) examined the literacy proficiencies of community college graduates. As community college educators themselves, they were very interested in examining the relationship between community college graduates' literacy skills and literacy practices as these pertained to (1) having graduated from a community college and (2) graduates' acquisition of information from a variety of sources—television viewing, listening to the radio, reading newspapers and magazines, and from family and friends. Their analyses are straightforward and, for the most part, descriptive. They compared the percentages of high school, community college and baccalaureate graduates at each prose and document literacy level. In regards to literacy proficiencies, they found that community college graduates perform "in the middle," that is, higher than high school graduates but lower than college graduates. The authors did not appear to use much of the demographic information to tease out the other factors in the participants' backgrounds, besides educational attainment, which might have important effects on assessed differences in literacy.

Community college students' literacy practices were examined, but were not compared to other education levels. Howard and Obetz offered several suggestions for community college educators regarding the improvement of their students' literacy skills and practices (e.g., "use...students' background information...to develop comprehension and writing skills," and "developing...students' awareness of interest in reading for self-improvement or recreation," 467). The primary EBQ sections relevant to this study were for demographic information and literacy practices. Because the EBQ item that assesses the amount of personal use writing one does (#E-7) is largely limited to the types of writing one does at work (e.g., letters, memos, forms and reports), inferences from these data are not as strong as they would be if the item measured the types of *personal* writing individuals' engage in at home and in other nonwork settings (e.g., writing recipes, taking phone messages, making grocery lists, journal writing). Further, since this

study is largely descriptive, the researchers should be cautious in making inferences that go beyond the NALS sample.

Pryor and Schaffer (1997) examined the question of why university-educated adults have been found, increasingly, to take jobs requiring high school level skills. This trend has resulted in rising wages for these jobs. Their research question is as follows: Who are the university graduates that are ending up in high school jobs? Although it is somewhat unclear from their description, their analyses appeared to be based largely on data from the Current Population Survey (CPS) for 1971, 1979, 1987, and 1995. NALS EBQ data may also have been used to examine the numbers of university-educated adults in high school jobs. They then used the NALS PDQ scores to link "functional literacy" to labor force status, occupation, and wages. Literacy proficiency scores and hourly earnings were compared across four levels of educational attainment (high school dropout, high school diploma only, some university courses, and university degree).

Pryor and Schaffer show that it is primarily those university graduates who lack university-level literacy skills who are taking high school level jobs. Also, it is mostly those who are university-educated and in jobs requiring university-level literacy skills who are obtaining the major wage increases. This analysis resolves the "paradox" of why the apparent surplus of university graduates is associated with the rising wages of this group.

For the purpose of linking functional literacy to labor force status, occupation, and wages, NALS proficiency scores were used by taking the average of the three PDQ scales. First, they examined functional literacy data by education and occupation; they then looked at the relevant wage data. The data show that the functional literacy of workers with a given level of education increases as the occupational tier increases. Thus, those with a university education working in occupations in which most workers had less than a university education showed lower functional literacy than university-educated individuals in university-level jobs. This suggests that university-educated persons in high school level jobs took these jobs because they had lower literacy qualifications than other university-educated workers and could not obtain jobs in occupations commensurate with their education.

Pryor and Schaffer note, and this is also confirmed by Gerber and Finn (1998), that it is possible that functional literacy can be influenced by on-the-job learning, thus the job itself can play a role in the relationship between occupation, education, and functional literacy. They concluded that, from 1971–87,

university-educated workers of all ages were more frequently taking jobs in which the average educational level required was much lower (i.e., high school education). Also, university-educated workers who have experienced downward occupational mobility have, on average, much lower functional literacy than do other university graduates. Finally, the increase in wages of university-educated adults who are pursuing higher-level occupations reflects a shortage of university-educated workers with the functional literacy skills that are commensurate with a university education.

We were unable to confirm from our reading of the report, and Pryor's responses to our e-mail survey, whether the background and demographic information used in the Pryor and Schaffer analyses were derived from the NALS EBQ or the CPS data. The NALS proficiency scores were more crucial to their arguments than were the background data, in any case. Generally, descriptive analyses were conducted.

Raudenbush and Kasim (1998) examined racial, ethnic and gender gaps in earnings and employment. Although educational attainment is now similar for American men and women, a large gender gap remains in earnings. Also, while African-Americans and Hispanic Americans have fewer years of schooling and fewer degrees than European Americans, large ethnic gaps also exist in access to employment and earnings, even after educational attainment differences are taken into account. Several explanations for these gender and ethnic gaps in employment and earnings have been offered, according to Raudenbush and Kasim. First, quantitative measures of education (e.g., years of schooling and degrees obtained) inadequately capture the cognitive knowledge and skills that are important in the labor market. Second, people vary in their preferences for different kinds of work, and therefore select occupations that have varied job security and earnings. For example, women tend to select jobs that pay less than jobs that men select. Raudenbush and Kasim tested these explanations by examining between- and within-occupation inequality in employment and earnings by gender and ethnicity.

They addressed four questions in their investigation: (1) How important is cognitive skill, as indicated by the NALS literacy assessment, in reducing the risk of unemployment and predicting earnings? (2) How large are differences in cognitive skills between groups? (3) How important is group inequality in cognitive skills for understanding social inequality in labor-force outcomes? (4) To the extent that cognitive skill differences do not account for ethnic and gender differences in economic outcomes, does the remaining inequality lie between or within occupations, or both?

The key variables for their analyses were the following: (1) social origin (age, parent education, gender); (2) human capital (educational attainment, credentials obtained, labor force experience, and literacy proficiency); (3) occupation (based on Department of Labor classifications); and, (4) labor force outcomes (natural log of wages per week and employment status). Therefore, data from several sections of the EBQ were critical to their analyses. The data analyses included the use of both the ordinary least squares (OLS) method and two-level hierarchical linear modeling (HLM) procedures (i.e., both between and within occupations).

Raudenbush and Kasim found that the independent contribution of literacy (cognitive skill) to earnings is important, but not very large. On the other hand, the independent contribution of education, after controlling for literacy, is only marginally significant. Also, they determined that most of the effect of obtaining educational degrees is independent of literacy (cognitive skills). Further, literacy was found to contribute to reducing unemployment, but the effect was not large.

Gender gaps in literacy are small but vary slightly across ethnic groups (as noted by Friedman and Davenport 1998). However, the ethnic gaps in literacy are quite large between African-American, Hispanic, and Asian males as compared to European American males. Ethnic gaps in literacy among females is much smaller. The OLS model accounted for 57 percent of the variance in literacy, but the HLM analysis accounted for 95 percent of the variance in literacy between occupations and 41 percent of the variance within occupations. Thus, literacy appears to be a potentially important variable in understanding gender gaps in employment and earnings.

The ethnic gap in earnings between African-American and Hispanic males as compared to European males is quite large, but is substantially reduced by controlling for adult literacy. However, for females there is no ethnic gap in earnings for these groups. Raudenbush and Kasim found that 40 percent of the expected difference in log wages between African-American and white males, having the same education, labor force experience, and parent education, is attributable to the fact that African-American are less likely than whites to work in favorable occupations. Literacy explains more than half of the between-occupation gap, but less than half of the within-occupation gap. Having lower literacy skills, therefore, denies African-Americans access to favorable occupations and helps to explain wage inequality on the basis of ethnicity. Adult literacy is an important explanatory variable in regards to SES and ethnic inequalities in

earnings, and is an explanatory variable in regards to ethnic inequality in employment and risk of unemployment.

Gender gaps in earnings ranged from large (e.g., European Americans) to small (e.g., Hispanics). Controlling for literacy has little or no effect on this gender gap. Further, the majority of the gender gap is within-occupation, rather than between-occupation. Therefore, neither theories of gender-based occupational preferences or of discriminatory occupational segregation explain this difference. Controlling for literacy essentially eliminated the between-occupation component of the ethnic gaps in risk for unemployment. Ethnic inequality in employment opportunities is a within-occupations phenomenon, according to Raudenbush and Kasim. However, about two-thirds of the African-American versus European American male gap in earnings, and essentially all of the gap in unemployment, lies within occupations.

Among Raudenbush and Kasim's conclusions were that there are important differences in cognitive (literacy) skills among persons sharing the same educational backgrounds, and these differences are linked to prospects for employment and earnings. The quality of schooling and of nonschool environments must, therefore, be improved for Hispanics and blacks. (It is interesting to note that Reder, 1998b, found that inequities in literacy proficiencies may impede any achieved equities in schooling—e.g., educational attainment—between minority and nonminority groups. Thus, attention must be devoted to increasing literacy among minority group members.) However, the situation is different for the gender gap in earnings, since higher literacy is not a predictor of this earning discrepancy. This is consistent with the possibility of labor-market gender discrimination.

Raudenbush and Kasim employed very elegant analyses to address each of their research questions. They were able to make strong inferences from the data because they (a) used many control variables, and (b) innovatively conducted the analyses to separate within- and between-occupation differences. They noted in their discussion, however, that although they determined that much of the earnings gaps are due to within-occupation differences, they could not discern if this result was due to various noncognitive factors. We assume that this refers to motivational or behavioral differences between the genders and among the racial/ethnic groups, which may account for some of the earnings gap. This suggests that assessing some aspects of motivation (as it pertains to literacy) on the next generation EBQ

might be worthwhile. Among the limitations of their study, Raudenbush and Kasim suggest that a better measure of cognitive skills would have perhaps enabled them to account for the wage-earning gap.

Steve Reder has been one of the leading analysts of the NALS data, having published several studies regarding various aspects of the data (Reder 1995, 1998a, 1998b; Vogel and Reder 1998a, 1998b). For example, he and Susan Vogel have examined the relationships of educational attainment and literacy proficiencies among adults having one or more learning disabilities, as self-reported in the EBQ.

The primary purpose of the research reported in Reder (1995) was to disentangle the interactive effects of learning disabilities, literacy, and education on a number of adult outcomes. Several descriptive results were also reported. Reder examined both the prevalence of learning disabilities (LD) in the adult population and its distribution among various age, gender, and ethnic/racial groups. Also, the educational, social, and economic correlates of LDs were examined. Quantitative models of the joint impact of LDs, literacy, and education on these social and economic outcomes were tested.

Several regression methods were used to determine how LDs, education, and literacy mutually affect one another. A reciprocal effects model (e.g., educational attainment affects literacy; literacy acquisition affects subsequent educational attainment) was also used to assess the direct and indirect effects of LDs on a number of social and economic outcomes. Structural equation models (SEM) were used to distinguish the direct effects of LDs on literacy from the indirect effects of other variables on literacy. Essentially, Reder wanted to know whether or not learning disabilities affect a variety of economic and social outcomes beyond what would be expected from the lower levels of educational attainment and literacy proficiencies that are associated with LDs. The reciprocal effects model (e.g., literacy and education are assumed to mutually influence one another) fit the NALS data extremely well. Thus, Reder was able to distinguish direct and indirect effects of LDs on literacy, education, and several social and economic outcomes.

Reder (1998b) also used SEM to test the effects of literacy selection and literacy development on adults' literacy skills. As noted above, literacy selection is the influence of literacy skills on educational attainment. Literacy development, on the other hand, is the effect of educational attainment on literacy. A third, reciprocal effects, model was also tested. SEM was used because of the simultaneous effects of education and literacy upon one another. The variables used in the analysis were age, gender, race/ethnicity,

educational attainment, parents' education, learning disability status, log of annual earnings, and PDQ proficiency scores.

The reciprocal effects model proved to better fit the NALS data than either the literacy development or literacy selection models by themselves. The reciprocal effects model accounted for 40 percent of the variance in educational attainment and 54 percent of the variance in literacy proficiency, according to Reder. Next, Reder used the reciprocal effects model to examine the effects of education and literacy on a single economic outcome (i.e., annual earnings). Again, the reciprocal effects model fit the NALS data well for predicting annual earnings. Overall, literacy development processes were found to be more robust than literacy selection processes.

One of the limitations of the analyses, and corresponding results, is the use of the cross-sectional NALS data to model longitudinal outcomes (i.e., literacy development). Nevertheless, the reciprocal effects model fit the data well at a single point in time. The study demonstrated the need for longitudinal examinations of adult literacy acquisition. Clearly, Reder employed very appropriate data analysis techniques, taking into account the sampling design of the NALS by rescaling the sampling weights according to the estimated design effect and using plausible values methodology to estimate coefficients and standard errors (see Mislevy, Johnson, and Muraki 1992). Inferences were strong, mainly because of the use of a complex model that controlled for many variables that impact literacy and educational attainment. Policy recommendations were offered to the effect that educational equity must include discussions of both educational attainment and literacy proficiencies—particularly because minority wage differences disappear when literacy is taken into account.

Reder, in collaboration with Susan Vogel (Vogel and Reder 1998a), examined the educational attainment of adults who reported having one or more self-reported learning disabilities (SRLD) in the NALS. Descriptive statistics were reported (e.g., SRLD prevalence rates, gender ratios) and several inferential tests were conducted using design-weighted data. This procedure compensates for the complex sampling design of the NALS.

Among the findings was a significant two-way interaction of group (SRLD vs. nonSRLD) by gender on years of schooling completed. Having a SRLD had a large effect on educational attainment. The high school/GED graduation rate was only 48 percent within the SRLD group in comparison to 84 percent

in the nonSRLD group. Among the SRLD group, more women (55 percent) than men (42 percent) had completed at least a high school education. Vogel and Reder provide a number of conclusions to their findings and offer several implications for educational policy regarding the improvement of educational outcomes for students with learning disabilities. These include: (1) creating of meaningful school environments that ensure success for students with learning disabilities; (2) improving the transitions from junior to senior high and from secondary to postsecondary education, including helping learning-disabled students to become more aware of the many postsecondary educational opportunities available to them, and creating personal transition portfolios that help students retain documents pertaining to their learning disabilities; and, (3) identifying and offering follow-up services to learning-disabled students who drop out of high school.

This study enabled the researchers to generate educational policy recommendations from the NALS data. The EBQ data were particularly useful in this regard, as essential data were derived from the EBQ, including educational attainment (Vogel and Reder could determine not only if, but *when* respondents dropped out of school), gender and self-reported learning disability. Their breakdown of the information from the educational background portion of the EBQ into various types of secondary and postsecondary educational experiences strengthened their inferences. However, the self-report nature of the learning disabilities identification item may have limited their inferences because self-identification can be unreliable. In contrast, in the National Longitudinal Transition Study (NLTS) cited by Vogel and Reder, learning disability was identified by the respondents' school rather than self-reported. In comparing rates of learning disabilities between the NALS and NLTS, Vogel and Reder found large differences.

In a second article, Vogel and Reder (1998b) conducted several inferential analyses to compare SRLD adults to adults without learning disabilities and, again, examined gender differences between both groups. Both likelihood-ratio t-tests and analyses of variance were used to compare variable means. The focus of analyses was specifically on observed differences in literacy proficiency. PDQ scores were averaged to obtain a single indicator of literacy. The results were parallel to those reported in Vogel and Reder (1998a), as there were significant differences in literacy between SRLD and nonSRLD adults. Although overall, men and women do not perform differently on literacy, nonSRLD men slightly outperform women, while SRLD women perform significantly better than SRLD men. This latter finding is

in stark contrast to other studies that have shown that school-age females fare much worse than males on reading achievement measures. Vogel and Reder attribute this discrepancy to gender bias in school procedures for special education referrals.

Generally, their data analytic methods were appropriate and the EBQ data allowed for strong inferences regarding SRLD versus nonSLRD differences in literacy. However, since Vogel and Reder are making inferences regarding two intact groups, controlling for some additional background variables (e.g., family income, parents' education) could have further strengthened their inferences. An obvious limitation of the data is the self-reported nature of LD identification. Vogel and Reder made few policy recommendations in this report. They note, however, that their finding that severe literacy problems persist well into adulthood for those with SRLDs has important implications for educators. Fortunately, research has demonstrated some effective methods for teaching reading to students with learning disabilities; classroom teachers should learn more about how to implement these methods.

Venezky, Kaplan, and Yu (1998) developed a predictive model of adults' voting behavior using the NALS data (see also Venezky and Kaplan 1998). Demographic characteristics (e.g., age, gender, race/ethnicity, educational attainment, household income), literacy proficiencies (e.g., prose literacy) and literacy practices (e.g., frequency of newspaper reading, frequency of job-related reading, number of magazines read, and amount of newspaper and book reading) were used to predict voting behavior using logistic multiple regression analysis.

The researchers' analyses were appropriate and included very sophisticated multivariate methods. The results indicated that the likelihood of voting increases with age, literacy proficiency level, educational attainment, and income. Females were slightly more likely to have voted than males, and whites were somewhat more likely than other racial/ethnic groups to have voted. However, when age, education, income, prose literacy proficiency, reading habits, and other variables were statistically controlled, blacks were found to have a significantly higher probability of voting—indicative of the importance of using multivariate procedures when analyzing these kinds of data. Education was the single most important predictor of voting behavior. Other differences in reading practices were reported. Generally, those who read more text materials (e.g., newspapers, books) were more likely to vote than those adults who read fewer materials.

The researchers' inferences were limited due to the restrictions of the data. First, the cross-sectional nature of the NALS design does not allow for an examination of changes in voting behavior over time. Second, analyses of voting behavior were restricted because there was no question regarding voter registration status (e.g., "Are you registered to vote?") as in the Young Adult Literacy Survey (YALS) (Kirsch and Jungeblut 1986). Also, the voting question was different from that posed in the YALS (i.e., voting in local elections was not included in the NALS—only in national or state elections). Therefore, it was impossible to compare (1) probability of voting in local elections and (2) results from the two surveys for the 21-25 year old cohorts (the age range of the YALS).

Due to the wording of the question, inferences regarding educational attainment were also limited. The NALS EBQ asked for the respondent's highest level of educational attainment. If, for example, an individual were to drop out of school in 10th grade, but then earn the GED, that would be coded as equivalent to an individual who dropped out at grade 12 and subsequently earned the GED. The authors suggest that these kinds of data limitations restricted their inferences. Yet, they nonetheless put forth some policy recommendations, and they note that, in future studies, it would be interesting to investigate the impact of adults' use of online materials on reading practices. We next turn to a description of three NALS studies that the authors of this report have conducted.

Smith and Sheehan-Holt Studies

We have conducted several analyses of the NALS using data drawn from the EBQ. These analyses have largely focused on respondents' reading practices and literacy proficiencies. Data from Section B (Educational Background and Experiences), Section E (Literacy Activities and Collaboration) and Section F (Demographic Information) of the EBQ have been the primary data sources in these analyses, along with PDQ scores.

Smith (1996) conducted a study examining associations between adults' PDQ literacy proficiencies and their reading practices involving the uses of five types of print contents—books, newspapers, magazines, and personal and work-related documents. Comparisons were made between high- and low-activity readers within each text category in regards to literacy proficiencies. The cut points for distinguishing between the high- and low-activity readers corresponded approximately to that point dividing

the distribution in half, allowing for use of all of the available data. A secondary focus of the study was on age differences in reading practices, taking advantage of the cross-sectional design of the NALS. Both descriptive and inferential results were reported. The primary data analyses employed analysis of variance to test differences between high- and low-activity readers in regards to the different print contents. Multiple regression analyses were performed to examine age group differences while controlling for educational attainment. The findings can be summarized by saying that, in general, those who read more categories of printed materials—regardless of the nature of these materials—had significantly higher PDQ scores than those who read fewer categories of texts. Book readers demonstrated the highest PDQ scores. Both educational attainment and reading practices were found to contribute significantly to PDQ literacy proficiencies.

Inferences about between-group differences could have been strengthened by taking into account important demographic characteristics (e.g., parents' educational attainment, income). The study also would have benefited from having additional information pertaining to adults' uses of reading materials and more detailed information about the materials themselves. For example, respondents were asked to indicate the number of *categories* of books read, rather than to estimate the total number of individual books read. Obviously, some individuals may read dozens of books within a single category, while others may read a few books from several categories. Thus, this estimate of book reading is a very crude measure of reading behavior. 42 percent of the adult population read from a book category at least once a week or more. Given the pervasiveness of book reading, it would be very informative to know more about the quantity and types of books read. Also, book reading was found to be higher for blacks than for whites when some background characteristics were controlled. It would, therefore, be interesting to know if this finding holds up for the total number of books read, or for number of books within certain categories.

Although somewhat more difficult to obtain, data regarding the relative quality of the reading materials typically used by adults would also be informative. Some book and periodical readers read only highbrow literature and reputable news dailies and journals (e.g. the New York Times, Atlantic Monthly, Wall Street Journal); others' reading tastes tend toward popular fiction (e.g., romance novels) and weekly tabloids; still others' reading may lie somewhere between these two extremes. Asking respondents to indicate specific, prototypical examples of their reading on the EBQ will allow us to obtain highly useful

and interesting data and enable much more fine-grained analyses of adult reading practices and how these practices may contribute to literacy skills (this point was also raised by one of our survey informants—see above).

The Smith and Sheehan (1998) chapter summarizes the Smith (1996) study and includes a second set of analyses by the two authors who examined racial/ethnic group differences in reading practices. No specific research questions were stated. A series of regression analyses were conducted. Age, education, occupation, and prose literacy, but not income, were controlled in all analyses. Several interesting racial/ethnic group differences were found with respect to reading practices that require further study. Recommendations pertained to increasing document literacy instruction in school, particularly for ethnic minorities, and noted that increased efforts should be directed toward developing the reading skills and practices of socially and economically disadvantaged adults in ways that lead to higher literacy skills. The authors could not make strong inferences regarding the literacy practices of Hispanics (those whose native tongue is Spanish) since the NALS assessed only English literacy skills and practices.

Sheehan-Holt and Smith (in press) also investigated the association between adults' participation in basic skills education and their reading practices. The rationale for this study was to ascertain the role that basic skills programs may play in contributing to adults' literacy. Obviously, in an ex post facto study of this type, there are no pretest measures to distinguish basic skills participants from nonparticipants. A number of control variables were therefore used in the regression analyses, including educational attainment, English as primary home language, presence of disability or long-term illness, and newspaper reading practice.

The NALS EBQ contained three items pertaining to basic skills education. The first asked if the respondent had ever taken part in a program (other than in regular school) to improve their basic skills in reading, writing, and arithmetic. If the respondent indicated "yes," s/he was then asked to identify the type of program in which s/he had participated. Four broad categories of programs were listed, including (1) a training program or courses given or sponsored by an employer or union, (2) a publicly sponsored education and training program such as Job Training and Partnership Act (JTPA) or Adult Basic Education (ABE), (3) a tutoring program sponsored by a library, church, or community organization, and (4) any other

program. Finally, they were asked how recently they had taken part in this training: still enrolled; within the past year; between one and five years ago; more than five years ago.

No evidence was found that, as compared to nonparticipation, participation is related to better literacy skills. Basic skills participants did have higher reading practices in four of the five reading content areas. For example, adults who took part in job-related basic skills programs read newspapers and work documents more frequently than did those who participated in tutoring-type programs. The NALS limited the investigators' ability to make inferences regarding possible outcomes when adults participate in basic skills programs, since there were no data regarding the duration of individuals' participation in basic skills. This information would be very useful, as other studies suggest that upwards of hundreds of hours of instruction may be needed to positively affect literacy skills for those individuals at the lowest literacy levels (Sticht and Armstrong 1994).

The researchers were able to address their research questions in each of the two studies above. Appropriate sampling weights and plausible value methodology (Mislevy, Johnson, and Muraki, 1992) were employed in every case and, in Sheehan-Holt and Smith, the design effect using HLM was taken into account. The nature of the EBQ affects the inferences made in all three studies. In the case of the Sheehan-Holt and Smith study of basic skills participation, much more information is needed in regards to the quality of basic skills programs and instruction, duration of participation in basic skills programs, and so on, to determine how such programs may impact literacy skills. The use of a large number of control variables helped to strengthen the inferences made regarding the differences between participants and nonparticipants, although this approach does not substitute for a longitudinal analysis.

Summary of Content Review

A total of 14 papers reporting analyses of the NALS data, including data that were drawn from the EBQ, were described in this section of our report. The foci of these studies pertained to the associations between literacy and education, gender, age, race, ethnicity, and voting behavior, inequalities in economic opportunities, employment and wages, and learning disabilities, among other topics. We identified the research questions, the nature of the data analysis procedures, and most significantly, the relative abilities of

the investigators to utilize data derived from the NALS EBQ to conduct their studies in a satisfactory manner. In other words, how adequately did the EBQ data contribute to these studies?

The research questions are obviously constrained by the data available to the analysts. Thus, the researchers generally did not pose questions that they would be unable to answer with some degree of confidence. It is true, of course, that most would have preferred to have more variables to draw upon from the EBQ, and in some cases, entirely different variables to enhance their studies and shed further light on the explanatory variables regarding adult literacy. Nonetheless, these studies collectively go a long way toward furthering our understanding of the powerful role that literacy plays in American adults' lives in the late twentieth century.

Conclusions

What kinds of information should be obtained in a revised English-language Background Questionnaire for the NAAL 2002? The recommendations that follow are based on our survey of NALS EBQ data users, analyses of the published research reports (in the literature) that have used data from the EBQ, our own extensive experience with these data, and the recommendations of a series of focus groups conducted by the American Institutes for Research (AIR) in early 1998. We recommend several revisions and changes to the EBQ for the NAAL 2002. We discuss various technical and substantive implications of these recommended changes, our views on the impact of these changes in terms of costs and benefits to adult literacy stakeholders, and how changes to the EBQ might impact the assessment of trends in adult literacy.

Technical and Substantive Implications

How well do the background data enable researchers and policy analysts to make strong inferences regarding the effects of various factors on adult literacy? Our evaluation of the published studies that have utilized the NALS English-language Background Questionnaire data leads us to give the EBQ a "passing grade" in terms of the utility of the data for enabling strong inferences regarding literacy within the U.S. adult population. With the advent of sophisticated statistical software and methods in recent years—particularly hierarchical linear modeling (HLM) and structural equation modeling (SEM)—researchers are able to test various models to determine the nature of relationships among variables. The NALS data,

because of the sampling design employed and large numbers of variables and participants that characterize the survey, are well suited to these high-level statistical procedures and yield very robust results.

Nonetheless, there are several important limitations and weaknesses of the EBQ data that have been acknowledged by the developers and pointed out by those who have subsequently utilized the data for research and policy. The identified problems resulted from the inevitable tradeoffs and compromises necessary to construct a measure which captures essential data within the practical and logistical constraints of conducting a large-scale and costly national survey. Clearly, the 1992 NALS should serve as a learning tool for refinement of the next-generation NAAL and every attempt should be made to correct the acknowledged flaws and overcome the perceived limitations of the EBQ. At the same time, changes to the current version of the EBQ must be weighed against the potential loss of opportunities to examine trends in adult literacy from 1992 to 2002. Such examinations will be significantly hindered if the EBQ is radically altered. Perhaps a reasonable compromise is to include additional items, as suggested by several of the researchers whom we interviewed, and to maintain most or all of the present items. This approach, of course, will impact the manner in which adults' literacy proficiencies are assessed.

Recommended Changes to the EBQ

The following comprises an extensive list of recommended changes—mostly additions—to the current form of the EBQ. Virtually every part of the EBQ would be altered by implementing these recommendations. The result would be more useful information for adult literacy stakeholders. We will describe the recommended changes section by section.

General and language background. First, as previously discussed, a question should be added which asks the respondent, "What is your primary spoken language?" Phrasing the question in this manner allows the respondent to indicate his/her oral language, rather than having the data user try to ascertain the primary language. That is, currently, different data users can employ different language background items (e.g., items #A-4, #A-8, #A-15) to determine respondents' primary language—resulting in a lack of consistency in target populations across studies. Second, the AIR focus groups recommended that more information on language use and facility in other languages be obtained. This information was obtained in the 1992 survey, but was not disseminated.

Educational background and experiences. More information is needed about respondents' educational histories and attainments. This seems particularly critical given the obvious relationship between education and literacy proficiencies. We recommend that an item that asks for the number of years of formal schooling completed be added. The addition of this question captures all of the information presently obtained by item #B-6, except for the "vocational, trade, or business option." A separate question could be posed to ascertain type of vocational, trade, or business degree, certification, or other credential earned, if any

Because the NAAL 2002 will have substantial implications for educational policy as it pertains to adult education, it seems particularly important to gather more data on adults' participation in various basic skills training programs. This recommendation was also made by the AIR focus groups. Specifically, we recommend that, in addition to the current items, respondents' estimates of the duration of their participation in basic skills programs (i.e., number of weeks enrolled) be obtained. Also, was the basic skills program completed? Because it is typical for people to enter, drop out, and re-enter these kinds of programs, it is important to ascertain the number of times that the respondent has enrolled in basic skills programs. For those adults who participated in one or more basic skills programs and completed the programs, did they subsequently continue their education by enrolling in college or a vocational, trade, or business school, or pursue any advanced form of occupational training? What other kinds of training and credentials that prepare individuals for the workplace were earned, aside from educational diplomas and certificates?

Participants in basic skills education typically, but not exclusively, lack a high school diploma. People drop out of school at different ages and grades. An individual who drops out at 12^{th} grade, for example, may be better prepared to obtain the GED than a person who dropped out in 10^{th} grade. This is another reason for determining highest grade, or number of years of school, completed. In addition, to capture more complete information about this population, a question could be added that asked whether one obtained a GED and if so when. Finally, for those who have graduated from high school, how was their degree earned? In other words, did they receive any special services while in school (e.g., special education) or participate in talented and academic gifted programs?

Political and social participation. It is our recommendation that this section of the EBQ either be (1) extensively expanded to capture more information about adults' social participation as it relates to literacy, or (2) truncated by deleting the four sub-scale items along with other sections of the EBQ. In our estimation, only two items on this sub-scale pertain to "social participation"—TV viewing and library use. Thus, the scale extensively taps into neither adults' involvement in society nor their communities where they might engage, more or less extensively, in literacy. Questions could be posed that ask more specifically about the extent of respondents' community involvement and social networks. Examples include:

"Have you ever:

-written a letter to the editor of your local newspaper?

-written a letter to, contacted by phone, or visited the office of your city mayor, state representative, Congressional representative, Senator, or other elected or appointed representative at any level of government?

-volunteered to work in a civic, charitable, political or social organization?

-been a member of a local PTA/PTO or other school organization?

-been a member of a local church or parish?"

Our view is that items #C-1 ("how do you usually get information..."), #C-2 ("how many hours do you usually watch television each day?"), and #C-3 ("how often do you use the services of a library...?") are literacy practices questions that could be moved to Section E (Literacy Activities and Collaboration). Only item #C-4 ("have you voted in a national or state election...?) pertains to political participation. As noted previously, the item could be revised to include voting in local elections. Some people vote in local elections but not in state or national races; others vote only during national elections, but rarely for local ones. The primary problem with making this change is that it impedes trend analysis from 1992 to 2002 in regards to voting behavior, so these changes should be made only after careful consideration. We also suggest that a second item pertaining to respondents' voter registration status should be added. Rather than having a section of the EBQ which contains only two voting status items, however, we recommend shifting these questions to the Demographic Information section.

The AIR focus groups recommended the inclusion of items regarding civic participation, such as how closely participants follow public affairs, and how they obtain this information. The assessment of political participation could also be enhanced by asking if respondents have ever (1) held public office, (2) volunteered to assist in a political campaign, or (3) been involved in any other forms of political activism.

Labor force participation. We recommend several additions to this section of the EBQ in order to obtain data that will be useful to labor market economists, sociologists, and others. Based upon suggestions by researchers who have utilized the labor force data extensively, we recommend the addition of a question which asks respondents to provide their hourly wage rate (presently, this data can be determined by responses to items #D-3 and #D-7, although data from items #D-4 and #D-5 may also need to be used to determine hourly wage rate). Also, more questions about respondents' work histories are important—what and how many jobs have been held over the past five years? Which jobs were full-time work? Which ones were part-time work? For part-time workers, is full-time work being sought?

Additionally, researchers interested in labor force participation would have liked to have had more information on the work and wage histories of unemployed persons in the NALS sample. For unemployed respondents, it is critical to know something about their most recent job, when they were last employed, the type of occupation, and hourly wage rate. Several of these recommendations were made by the AIR focus groups.

Literacy activities and collaboration. We recommend several additions and revisions to this section of the EBQ. First, given the dramatic increase in technology availability and use for the average citizen, questions should be included that gather information about the kinds of technology that respondents are using (e.g., computers), how frequently (e.g., daily, a few times a week), and for what purposes (e.g., work, personal, entertainment). The Internet, for example, has become a major information and entertainment medium in the years since the NALS data were collected and will become even more significant in everyday life for millions of Americans by 2002. How has Internet use impacted adult literacy? Who has access and how? These questions could be addressed by including the recommended items.

The book reading practices item should be changed to capture not only categories of books read but also the total number of books—either a grand total or within each category. The magazine reading item

should be changed to reflect reading on a *weekly* basis, which is more specific than asking how many are read on a "regular" basis, which can have different meanings to people. Weekly reading is the same benchmark for all respondents.

We recommend a cleaner distinction between reading for personal (or social) uses (item #E-5) and for work (item #E-6). The print content choices (e.g., letters or memos, reports, articles, magazines, or journals, etc.) are the same for both items. The kinds of reading done for work and for personal/social reasons appear to be very different in most instances, however (Guthrie, Seifert, and Kirsch 1986; Kirsch and Guthrie 1984). Allowing respondents to provide examples of their reading for both types of purposes (i.e., personal/social, work) would be very informative. This is particularly true for the items that pertain to writing activities (#E-7, #E-8). Only writing for personal use (e.g., writing letters, memos, forms, and reports) was assessed in the NALS. We recommend expanding this item (#E-7) to include examples of writing practices which are more typical of everyday life, such as making lists, taking phone messages, keeping a diary, and summarizing or getting the gist of a lengthy document or article.

In fact, more information could—and needs to—be gathered about adults' typical literacy practices, including reading, writing, and arithmetic. This means not only assessing the frequency and type of practices, but also learning about the challenge, or difficulty, of the literacy tasks that adults face, as well as the criticality, or significance, of these literacy tasks and activities to their lives and work. Currently, Statistics Canada is examining these issues, based upon what they have learned from the results of the International Adult Literacy Survey (IALS) (S. Murray—personal communication, March, 1999). These data could be gathered on a sub-sample using a diary approach.

Demographic information. Information regarding the occupations of the respondents' parents is needed. Parents' occupational status clearly has a significant impact upon educational, social and job opportunities and, at least indirectly, has some influence on literacy. This kind of data would have been very useful to previous NALS-based research on the relationships among occupation, literacy, and wages. We also suggest that one or more items pertaining to voting and voter registration status be included in this section if the Political and Social Participation section is not expanded.

Alternative Approaches

Increasing the number of items contained within the EBQ will necessarily increase the time needed to administer the survey. What can be done, then, to reduce the overall administration time for the literacy assessment and background survey? Some experts have suggested revising the literacy assessment. Reder's (1998b) analyses have shown that the PDQ literacy proficiency scales are highly correlated with one another. In essence, each scale taps into somewhat overlapping dimensions of the same basic ability. These issues are, by now, well known to the NALS developers so we will not discuss them in detail here. It is sufficient to note that Reder's evidence "indicates that the dominant feature of the *assessed* [italics in original] construct of literacy is a single general literacy capability" (52). Individual literacy items on the NALS scales were shown to cut across all three categories; thus, as Reder's analyses suggest, it should be possible to assess and interpret literacy performance using a single scale.

There has been some suggestion that, for example, only the document proficiency scale be employed in future NALS assessments. Individual items contained in the document scale may contain more or less prose and/or quantitative tasks embedded within them, and these items could then be subjected to further analyses to ascertain respondents' prose and quantitative literacy performance, if so desired. Another approach is to combine all three assessments into a single general literacy scale. This may be a reasonable approach to reducing the administration time for the literacy assessment and thus allow for increased administration time of a lengthier EBQ.

Sticht's (1999) advocacy of a telephone-administered NALS-type literacy assessment also has implications here. The advantage of a telephone assessment, among other benefits that are described by Sticht, is the possibility of having multiple contacts with respondents. For example, a lengthier, more detailed version of the EBQ could potentially be administered in several stages to the same respondents. Multiple telephone contacts may have the effect of establishing greater rapport between the interviewer and the respondent and thereby yield a stronger commitment to participation on the respondent's part and may result in more reliable data. Sticht has estimated an 80 percent cost savings for a national literacy assessment through the telephone survey method. Even if multiple telephone contacts with respondents were

required to administer a more comprehensive EBQ, and respondents were paid for each interview, the costs should still be well below that of the 1992 NALS.

We are also informed by the current longitudinal study of adult literacy being conducted by Steve Reder. The longitudinal study is sponsored by the National Center for the Study of Adult Learning and Literacy, at Harvard University, and is funded by NCES. The purpose of the longitudinal study is to "better understand the process and consequences of adult literacy development over time" (S. Reder—personal communication, March 8, 1998). Information is being gathered about two groups of adults in the Portland (OR) greater metropolitan area who have low educational attainment—those who are enrolled in adult basic education programs (e.g., GED) and those who are not. Participants in both groups are going to be followed over three years and surveyed once each year. Participants in the former group are identified through the various programs in which they participate (n=500); those in the latter group are identified through a random-digit dialing telephone screening interview (n=500). In addition to a literacy skills assessment, a very extensive background survey ("lifelong learning questionnaire") is individually administered using a computer-assisted personal interview script. Both the literacy assessment and background interview require about two hours to complete (S. Reder—personal communication, April, 1999). Participants are paid thirty dollars. There is some hope that this limited project will be the test ground for a national longitudinal study of adult literacy.

The Lifelong Learning Questionnaire used by Reder's research team obtains information on the following topics:

- Educational background and school history;
- Employment status and work history;
- Contextual influences on learning;
- Language background;
- Learning motivations, contexts and activities;
- Participation in adult education;
- How information is obtained;
- Reasons for dropping out of adult education programs;
- Literacy practices at work, home, and school;

- Social networks and civic involvement; and,
- Demographic variables.

It is our recommendation that the NAAL 2002 development team look closely at the Lifelong Learning Questionnaire and consider incorporating a number of the items contained in this survey consistent with the above recommendations.

The National Center for Education Statistics conducted, in 1991 and 1995, a National Household Education Survey (NHES), using random-digit dialing procedures. The 1995 survey consisted of two components: an adult education component and an early childhood program participation component. The adult education survey is relevant to our report, as the sampling and data collection methods are quite similar between the NALS and the NHES:95. Interviews were completed with nearly 20,000 adults ages 16 and older who were not on active military duty for the NHES:95. This survey focused on the participation of adults in a wide range of educational activities during the year prior to the interview. Respondents were asked about their participation in seven types of adult education, including basic skills and GED classes, college coursework and degrees, vocational training, apprenticeships, work-related courses, and other forms of instruction. Also obtained were data regarding reasons for and barriers to participation in adult education. A few literacy-relevant variables were also obtained (e.g., public library use).

Our past work with the NALS (see Smith and Sheehan 1996) indicates that variables obtained at the different levels of sampling might be important to understanding some of the relationships among literacy and other variables in the NALS. We have found that the intraclass correlations of the three literacy scales are moderate at the segment level. Because the segment level of the sampling design constitutes blocks or groups of census blocks, we have termed this segment-level variation "neighborhood effects" (see Sheehan-Holt and Smith 1998). Our work has determined that the mean income of the neighborhood accounts for variation in literacy skills among individuals—even beyond what is accounted for by family income. Therefore, another recommendation which developers of the NAAL 2002 should consider is the collection of data at higher levels of sampling design—particularly the segment level. For example, such data might include the crime rate of the neighborhood, the percent of African Americans and Hispanics in the neighborhood, whether there is either a library or other resources for literacy available in the neighborhood, and the average family income and average education level of the neighborhood.

It may be worthwhile to consider obtaining more extensive literacy-relevant background data (e.g., literacy activities and collaboration) in future NCES adult education surveys. Perhaps the NAAL 2002 could be combined or integrated with a future adult education survey or vice versa—a change that was also called for by the AIR focus groups. A sub-sample of the NAAL 2002 participants could also complete the NHES adult education survey. Integrating the EBQ and the adult education surveys would result in a lengthier EBQ which could be administered over the telephone, across multiple contacts, as suggested above. Combining the two surveys achieves the purposes of both the NAAL and the NHES and can result in substantial cost savings. Linking information from both surveys would enable researchers to study how barriers to adult education may, for example, deter the acquisition or development of literacy among some populations.

The AIR focus groups recommended several changes for the NAAL 2002, as we have previously noted. Among their recommendations is that a mechanism should be used to "relate the 2002 survey results to the demographic and dynamic changes in society" (Sherman, Condelli, and Koloski 1998, 6) and to report the information in a broader context. It may not, however, be possible to implement this valuable recommendation without the benefit of additional background data. We also note that the consensus of the focus groups was to expand the EBQ to obtain more descriptive information about the sample, thereby enabling more in-depth analyses by primary and secondary analysts.

Assessment Costs

Despite the recommendation—by the writers of this report and other adult literacy stakeholders and experts—for the addition of numerous items to the EBQ, we recognize the need to have a parsimonious set of background questionnaire items that will provide the most essential information about literacy. The data must be sufficiently robust and detailed to allow strong inferences about adult literacy. There is a delicate balance between managing the costs of a survey (which includes administrative and other personnel, and data management and analysis costs) and obtaining good data. The advantages of adding or deleting items and/or modifying existing items contained within the EBQ must be weighed against the disadvantages (i.e., the potential costs—in terms of real dollars and/or the sacrificing of useful data).

The addition of items to the EBQ will increase the administration time for the survey and the overall costs of data collection. Both interviewers and respondents must be paid for their time, among other costs. If the administration time is increased for the EBQ, then it may be necessary to decrease the time allocated for the literacy assessment to avoid imposing unreasonable demand upon respondents (which would make it more difficult to obtain participants—thereby further increasing data collection costs). Further discussion will be necessary to determine the best course of action in regards to the literacy assessment strategy.

The primary advantage to changing the EBQ used in the 1992 NALS is that, potentially, more useful data can be obtained as a result of these revisions. Any content changes to the EBQ may present complex problems that impede trend analyses. Therefore, the recommendations that involve the addition of new items are not as dramatic as those that call for some items to be revised. However, the addition of items can have unintended effects. That is, the antecedent items may suggest a particular frame of reference for subsequent questions and, therefore, responses to these latter questions may be influenced because the context has been changed. These changes, if implemented, will present a particular challenge to the EBQ developers for the NAAL 2002.

It is very important for researchers and policymakers to have an expanded EBQ from which to draw data. Several researchers have expressed to us that was (and remains) frustrating to have such a limited EBQ and—at the same time—a very good assessment of literacy proficiencies. Because a great amount of effort, time, and dollars have been committed to developing a quantitative measure of literacy, we believe that it will be beneficial to all literacy stakeholders to have an EBQ that will allow researchers to conduct more thorough investigations of the many factors that are important to adult literacy.

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Attachments

A. Initial Contact E-mail Survey

B. NALS Background Survey Data Users Questionnaire

C. Studies Examined for Content Review

A. Initial Contact E-mail Survey

Dear NALS Data User:

Your name appears on a list of academic researchers, public policy experts, and other professionals who are users of the 1992 National Adult Literacy Survey (NALS) data [http://nces.ed.gov/nadlits/naal92/users.html]. We are currently preparing a technical report for the Education Statistics Services Institute (ESSI), evaluating the uses of background questionnaires in survey studies such as the NALS, with recommendations for changes in the background questionnaire for the National Assessment of Adult Literacy planned for 2002. As part of this effort, we would like to ask for your assistance.

The NALS background survey consisted of six "content areas" that gathered information on respondents': (1) language background; (2) educational attainment and experiences; (3) political and social participation (e.g., voting); (4) labor force participation; (5) literacy activities and collaboration with others; and (6) demographic information.

We would like to know three things:

First, have you conducted any analyses of the NALS data, or in any way reported the data from each or all of the six content areas contained in the background survey?

Second, if you answered "yes" to the previous question, which among the six content areas do you consider to be your area of expertise? (You may indicate one or more areas). For example, if you have analyzed relationships among educational attainment and literacy proficiencies, indicate "educational attainment" as your area of expertise.

Third, would you be willing to respond to a brief, follow-up e-mail or telephone survey? Please indicate your preference for either e-mail or telephone follow-up.

Your responses to this brief survey, and the follow-up survey, are and will remain anonymous.

Thank you for your assistance.

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B. NALS Background Survey Data Users Questionnaire

You may recall that we recently contacted you and asked you to respond to our brief "pre-survey" pertaining to your use of data from the National Adult Literacy Survey. At that time, we indicated that we wished to follow-up with a somewhat more extensive survey regarding your uses of the Background Survey from the NALS. We are preparing a technical report for the Education Statistics Services Institute in their preparation for the planned 2002 National Assessment of Adult Literacy. Results from the survey below will be incorporated into our report and used to make recommendations for the development of the National Assessment of Adult Literacy. We appreciate your taking time to respond to these questions.

Where relevant, please indicate the specific sections of the NALS Background Questionnaire you are commenting on. The six sections are:

Section A: General and Language Background

Section B: Educational Background and Experiences

Section C: Political and Social Participation

Section D: Labor Force Participation

Section E: Literacy Activities and Collaboration

Section F: Demographic Information

1.) What were the specific research questions in your study(ies) of the 1992 NALS?

2.) How did the 1992 NALS Background Questionnaire items enhance or strengthen your ability to draw inferences and/or make policy recommendations?

3.) (a) How did the 1992 NALS Background Questionnaire items limit your ability to draw inferences and/or make policy recommendations? b.) How were you able to rectify these problems? Please explain as precisely as possible.

4.) (a) What questions should be added to any or all of the sections of the 2002 National Assessment of Adult Literacy survey questionnaire, and (b) what existing items from the 1992 NALS Background

Questionnaire should be revised and included in the 2002 survey? (c) How would these additions and revisions allow you or other researchers to make strong inferences from the obtained data?

5.) (a) What topic areas, aside from those indicated by the six Sections in the 1992 NALS Background Questionnaire, do you think are important to examine for the 2002 National Assessment of Adult Literacy survey? (b) How would information on these topics be useful to you and other researchers and/or policy makers?

6.) Which questions and/or sections do you think are least useful and/or informative and should therefore be dropped from the 2002 National Assessment of Adult Literacy survey?

7.) Please list all papers and research reports you have published that pertain to your analyses of the 1992 NALS data.

Thank you for your response to this survey. Your responses to the questions are, and will remain, confidential.

Best Regards,

M Cecil Smith

Janet K. Sheehan-Holt

C. Studies Examined for Content Review

Friedman, L., and Davenport, E. (1998). Literacy Gender Gaps: Evidence from the National Adult Literacy Survey. In M C. Smith (Ed.), *Literacy for the Twenty-first Century: Research, Policy, Practices and the National Adult Literacy Survey* (pp. 95–108). Westport, CT: Praeger.

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Pryor, F.L., and Schaffer, D. (1997). Wages and the University Educated: A Paradox Resolved. *Monthly Labor Review, 120(7)*: 3–15.

Raudenbush, S.W., and Kasim, R.M. (1998). Cognitive Skill and Economic Inequality: Findings from the National Adult Literacy Survey. *Harvard Education Review, 68*: 33–79.

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Listing of NCES Working Papers to Date

Working papers can be downloaded as pdf files from the NCES Electronic Catalog (http://nces.ed.gov/pubsearch/). You can also contact Sheilah Jupiter at (202) 502-7444 (sheilah_jupiter@ed.gov) if you are interested in any of the following papers.

Listing of NCES Working Papers by Program Area

No.	Title	NCES contact
Baccalaureate and Beyond (B&B)		
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
Beginning Postsecondary Students (BPS) Longitudinal Study		
98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96-98) Field Test Report	Aurora D'Amico
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
Common Core of Data (CCD)		
95-12	Rural Education Data User's Guide	Samuel Peng
96-19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
97-15	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97-43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-03	Evaluation of the 1996-97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
Decennial Census School District Project		
95-12	Rural Education Data User's Guide	Samuel Peng
96-04	Census Mapping Project/School District Data Book	Tai Phan
98-07	Decennial Census School District Project Planning Report	Tai Phan
Early Childhood Longitudinal Study (ECLS)		
96-08	How Accurate are Teacher Judgments of Students' Academic Performance?	Jerry West
96-18	Assessment of Social Competence, Adaptive Behaviors, and Approaches to Learning with Young Children	Jerry West
97-24	Formulating a Design for the ECLS: A Review of Longitudinal Studies	Jerry West
97-36	Measuring the Quality of Program Environments in Head Start and Other Early Childhood Programs: A Review and Recommendations for Future Research	Jerry West
1999-01	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Education Finance Statistics Center (EDFIN)		
94-05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
96-19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
97-43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98-04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
1999-16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.
High School and Beyond (HS&B)		
95-12	Rural Education Data User's Guide	Samuel Peng
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
HS Transcript Studies		
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson

No.	Title	NCES contact
International Adult Literacy Survey (IALS)		
97-33	Adult Literacy: An International Perspective	Marilyn Binkley
Integrated Postsecondary Education Data System (IPEDS)		
97-27	Pilot Test of IPEDS Finance Survey	Peter Stowe
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
National Assessment of Adult Literacy (NAAL)		
98-17	Developing the National Assessment of Adult Literacy: Recommendations from Stakeholders	Sheida White
1999-09a	1992 National Adult Literacy Survey: An Overview	Alex Sedlacek
1999-09b	1992 National Adult Literacy Survey: Sample Design	Alex Sedlacek
1999-09c	1992 National Adult Literacy Survey: Weighting and Population Estimates	Alex Sedlacek
1999-09d	1992 National Adult Literacy Survey: Development of the Survey Instruments	Alex Sedlacek
1999-09e	1992 National Adult Literacy Survey: Scaling and Proficiency Estimates	Alex Sedlacek
1999-09f	1992 National Adult Literacy Survey: Interpreting the Adult Literacy Scales and Literacy Levels	Alex Sedlacek
1999-09g	1992 National Adult Literacy Survey: Literacy Levels and the Response Probability Convention	Alex Sedlacek
2000-05	Secondary Statistical Modeling With the National Assessment of Adult Literacy: Implications for the Design of the Background Questionnaire	Sheida White
2000-06	Using Telephone and Mail Surveys as a Supplement or Alternative to Door-to-Door Surveys in the Assessment of Adult Literacy	Sheida White
2000-07	"How Much Literacy is Enough?" Issues in Defining and Reporting Performance Standards for the National Assessment of Adult Literacy	Sheida White
2000-08	Evaluation of the 1992 NALS Background Survey Questionnaire: An Analysis of Uses with Recommendations for Revisions	Sheida White
National Assessment of Educational Progress (NAEP)		
95-12	Rural Education Data User's Guide	Samuel Peng
97-29	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Steven Gorman
97-30	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Steven Gorman
97-31	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Steven Gorman
97-32	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questionnaires)	Steven Gorman
97-37	Optimal Rating Procedures and Methodology for NAEP Open-ended Items	Steven Gorman
97-44	Development of a SASS 1993-94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
National Education Longitudinal Study of 1988 (NELS:88)		
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
95-12	Rural Education Data User's Guide	Samuel Peng
95-14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
96-03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings

No.	Title	NCES contact
98-06	National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report	Ralph Lee
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
1999-05	Procedures Guide for Transcript Studies	Dawn Nelson
1999-06	1998 Revision of the Secondary School Taxonomy	Dawn Nelson
1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
National Household Education Survey (NHES)		
95-12	Rural Education Data User's Guide	Samuel Peng
96-13	Estimation of Response Bias in the NHES:95 Adult Education Survey	Steven Kaufman
96-14	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman
96-20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-21	1993 National Household Education Survey (NHES:93) Questionnaires: Screener, School Readiness, and School Safety and Discipline	Kathryn Chandler
96-22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
96-29	Undercoverage Bias in Estimates of Characteristics of Adults and 0- to 2-Year-Olds in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
96-30	Comparison of Estimates from the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-02	Telephone Coverage Bias and Recorded Interviews in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-03	1991 and 1995 National Household Education Survey Questionnaires: NHES:91 Screener, NHES:91 Adult Education, NHES:95 Basic Screener, and NHES:95 Adult Education	Kathryn Chandler
97-04	Design, Data Collection, Monitoring, Interview Administration Time, and Data Editing in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-05	Unit and Item Response, Weighting, and Imputation Procedures in the 1993 National Household Education Survey (NHES:93)	Kathryn Chandler
97-06	Unit and Item Response, Weighting, and Imputation Procedures in the 1995 National Household Education Survey (NHES:95)	Kathryn Chandler
97-08	Design, Data Collection, Interview Timing, and Data Editing in the 1995 National Household Education Survey	Kathryn Chandler
97-19	National Household Education Survey of 1995: Adult Education Course Coding Manual	Peter Stowe
97-20	National Household Education Survey of 1995: Adult Education Course Code Merge Files User's Guide	Peter Stowe
97-25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
97-28	Comparison of Estimates in the 1996 National Household Education Survey	Kathryn Chandler
97-34	Comparison of Estimates from the 1993 National Household Education Survey	Kathryn Chandler
97-35	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
97-38	Reinterview Results for the Parent and Youth Components of the 1996 National Household Education Survey	Kathryn Chandler
97-39	Undercoverage Bias in Estimates of Characteristics of Households and Adults in the 1996 National Household Education Survey	Kathryn Chandler
97-40	Unit and Item Response Rates, Weighting, and Imputation Procedures in the 1996 National Household Education Survey	Kathryn Chandler
98-03	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98-10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
National Longitudinal Study of the High School Class of 1972 (NLS-72)		
95-12	Rural Education Data User's Guide	Samuel Peng

No.	Title	NCES contact
National Postsecondary Student Aid Study (NPSAS)		
96-17	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
National Study of Postsecondary Faculty (NSOPF)		
97-26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2000-01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
Private School Universe Survey (PSS)		
95-16	Intersurvey Consistency in NCES Private School Surveys	Steven Kaufman
95-17	Estimates of Expenditures for Private K-12 Schools	Stephen Broughman
96-16	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
96-26	Improving the Coverage of Private Elementary-Secondary Schools	Steven Kaufman
96-27	Intersurvey Consistency in NCES Private School Surveys for 1993-94	Steven Kaufman
97-07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Recent College Graduates (RCG)		
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
Schools and Staffing Survey (SASS)		
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
94-06	Six Papers on Teachers from the 1990-91 Schools and Staffing Survey and Other Related Surveys	Dan Kasprzyk
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
95-08	CCD Adjustment 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
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
95-18	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
96-05	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

No.	Title	NCES contact
96-07	Should SASS Measure Instructional Processes and Teacher Effectiveness?	Dan Kasprzyk
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
96-15	Nested Structures: District-Level Data in the Schools and Staffing Survey	Dan Kasprzyk
96-23	Linking Student Data to SASS: Why, When, How	Dan Kasprzyk
96-24	National Assessments of Teacher Quality	Dan Kasprzyk
96-25	Measures of Inservice Professional Development: Suggested Items for the 1998-1999 Schools and Staffing Survey	Dan Kasprzyk
96-28	Student Learning, Teaching Quality, and Professional Development: Theoretical Linkages, Current Measurement, and Recommendations for Future Data Collection	Mary Rollefson
97-01	Selected Papers on Education Surveys: Papers Presented at the 1996 Meeting of the American Statistical Association	Dan Kasprzyk
97-07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-09	Status of Data on Crime and Violence in Schools: Final Report	Lee Hoffman
97-10	Report of Cognitive Research on the Public and Private School Teacher Questionnaires for the Schools and Staffing Survey 1993-94 School Year	Dan Kasprzyk
97-11	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-12	Measuring School Reform: Recommendations for Future SASS Data Collection	Mary Rollefson
97-14	Optimal Choice of Periodicities for the Schools and Staffing Survey: Modeling and Analysis	Steven Kaufman
97-18	Improving the Mail Return Rates of SASS Surveys: A Review of the Literature	Steven Kaufman
97-22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
97-23	Further Cognitive Research on the Schools and Staffing Survey (SASS) Teacher Listing Form	Dan Kasprzyk
97-41	Selected Papers on the Schools and Staffing Survey: Papers Presented at the 1997 Meeting of the American Statistical Association	Steve Kaufman
97-42	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
97-44	Development of a SASS 1993-94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
98-02	Response Variance in the 1993-94 Schools and Staffing Survey: A Reinterview Report	Steven Kaufman
98-04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
98-05	SASS Documentation: 1993-94 SASS Student Sampling Problems; Solutions for Determining the Numerators for the SASS Private School (3B) Second-Stage Factors	Steven Kaufman
98-08	The Redesign of the Schools and Staffing Survey for 1999-2000: A Position Paper	Dan Kasprzyk
98-12	A Bootstrap Variance Estimator for Systematic PPS Sampling	Steven Kaufman
98-13	Response Variance in the 1994-95 Teacher Follow-up Survey	Steven Kaufman
98-14	Variance Estimation of Imputed Survey Data	Steven Kaufman
98-15	Development of a Prototype System for Accessing Linked NCES Data	Steven Kaufman
98-16	A Feasibility Study of Longitudinal Design for Schools and Staffing Survey	Stephen Broughman
1999-02	Tracking Secondary Use of the Schools and Staffing Survey Data: Preliminary Results	Dan Kasprzyk
1999-04	Measuring Teacher Qualifications	Dan Kasprzyk
1999-07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
1999-08	Measuring Classroom Instructional Processes: Using Survey and Case Study Fieldtest Results to Improve Item Construction	Dan Kasprzyk
1999-10	What Users Say About Schools and Staffing Survey Publications	Dan Kasprzyk
1999-12	1993-94 Schools and Staffing Survey: Data File User's Manual, Volume III: Public-Use Codebook	Kerry Gruber
1999-13	1993-94 Schools and Staffing Survey: Data File User's Manual, Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebook	Kerry Gruber
1999-14	1994-95 Teacher Followup Survey: Data File User's Manual, Restricted-Use Codebook	Kerry Gruber
1999-17	Secondary Use of the Schools and Staffing Survey Data	Susan Wiley

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2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk

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Adult education		
96-14	The 1995 National Household Education Survey: Reinterview Results for the Adult Education Component	Steven Kaufman
96-20	1991 National Household Education Survey (NHES:91) Questionnaires: Screener, Early Childhood Education, and Adult Education	Kathryn Chandler
96-22	1995 National Household Education Survey (NHES:95) Questionnaires: Screener, Early Childhood Program Participation, and Adult Education	Kathryn Chandler
98-03	Adult Education in the 1990s: A Report on the 1991 National Household Education Survey	Peter Stowe
98-10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
1999-11	Data Sources on Lifelong Learning Available from the National Center for Education Statistics	Lisa Hudson
Adult literacy—see Literacy of adults		
American Indian – education		
1999-13	1993-94 Schools and Staffing Survey: Data File User's Manual, Volume IV: Bureau of Indian Affairs (BIA) Restricted-Use Codebook	Kerry Gruber
Assessment/achievement		
95-12	Rural Education Data User's Guide	Samuel Peng
95-13	Assessing Students with Disabilities and Limited English Proficiency	James Houser
97-29	Can State Assessment Data be Used to Reduce State NAEP Sample Sizes?	Larry Ogle
97-30	ACT's NAEP Redesign Project: Assessment Design is the Key to Useful and Stable Assessment Results	Larry Ogle
97-31	NAEP Reconfigured: An Integrated Redesign of the National Assessment of Educational Progress	Larry Ogle
97-32	Innovative Solutions to Intractable Large Scale Assessment (Problem 2: Background Questions)	Larry Ogle
97-37	Optimal Rating Procedures and Methodology for NAEP Open-ended Items	Larry Ogle
97-44	Development of a SASS 1993-94 School-Level Student Achievement Subfile: Using State Assessments and State NAEP, Feasibility Study	Michael Ross
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
Beginning students in postsecondary education		
98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96-98) Field Test Report	Aurora D'Amico
Civic participation		
97-25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
Climate of schools		
95-14	Empirical Evaluation of Social, Psychological, & Educational Construct Variables Used in NCES Surveys	Samuel Peng
Cost of education indices		
94-05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
Course-taking		
95-12	Rural Education Data User's Guide	Samuel Peng

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Faculty – higher education		
97-26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
2000-01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
Finance – elementary and secondary schools		
94-05	Cost-of-Education Differentials Across the States	William J. Fowler, Jr.
96-19	Assessment and Analysis of School-Level Expenditures	William J. Fowler, Jr.
98-01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
1999-07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
1999-16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.
Finance – postsecondary		
97-27	Pilot Test of IPEDS Finance Survey	Peter Stowe
Finance – private schools		
95-17	Estimates of Expenditures for Private K-12 Schools	Stephen Broughman
96-16	Strategies for Collecting Finance Data from Private Schools	Stephen Broughman
97-07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
97-22	Collection of Private School Finance Data: Development of a Questionnaire	Stephen Broughman
1999-07	Collection of Resource and Expenditure Data on the Schools and Staffing Survey	Stephen Broughman
Geography		
98-04	Geographic Variations in Public Schools' Costs	William J. Fowler, Jr.
Imputation		
2000-04	Selected Papers on Education Surveys: Papers Presented at the 1998 and 1999 ASA and 1999 AAPOR Meetings	Dan Kasprzyk
Inflation		
97-43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
Institution data		
2000-01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler
Instructional resources and practices		
95-11	Measuring Instruction, Curriculum Content, and Instructional Resources: The Status of Recent Work	Sharon Bobbitt & John Ralph
1999-08	Measuring Classroom Instructional Processes: Using Survey and Case Study Field Test Results to Improve Item Construction	Dan Kasprzyk
International comparisons		
97-11	International Comparisons of Inservice Professional Development	Dan Kasprzyk
97-16	International Education Expenditure Comparability Study: Final Report, Volume I	Shelley Burns
97-17	International Education Expenditure Comparability Study: Final Report, Volume II, Quantitative Analysis of Expenditure Comparability	Shelley Burns
Libraries		
94-07	Data Comparability and Public Policy: New Interest in Public Library Data Papers Presented at Meetings of the American Statistical Association	Carrol Kindel
97-25	1996 National Household Education Survey (NHES:96) Questionnaires: Screener/Household and Library, Parent and Family Involvement in Education and Civic Involvement, Youth Civic Involvement, and Adult Civic Involvement	Kathryn Chandler
Limited English Proficiency		
95-13	Assessing Students with Disabilities and Limited English Proficiency	James Houser

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Literacy of adults		
98-17	Developing the National Assessment of Adult Literacy: Recommendations from Stakeholders	Sheida White
1999-09a	1992 National Adult Literacy Survey: An Overview	Alex Sedlacek
1999-09b	1992 National Adult Literacy Survey: Sample Design	Alex Sedlacek
1999-09c	1992 National Adult Literacy Survey: Weighting and Population Estimates	Alex Sedlacek
1999-09d	1992 National Adult Literacy Survey: Development of the Survey Instruments	Alex Sedlacek
1999-09e	1992 National Adult Literacy Survey: Scaling and Proficiency Estimates	Alex Sedlacek
1999-09f	1992 National Adult Literacy Survey: Interpreting the Adult Literacy Scales and Literacy Levels	Alex Sedlacek
1999-09g	1992 National Adult Literacy Survey: Literacy Levels and the Response Probability Convention	Alex Sedlacek
1999-11	Data Sources on Lifelong Learning Available from the National Center for Education Statistics	Lisa Hudson
2000-05	Secondary Statistical Modeling With the National Assessment of Adult Literacy: Implications for the Design of the Background Questionnaire	Sheida White
2000-06	Using Telephone and Mail Surveys as a Supplement or Alternative to Door-to-Door Surveys in the Assessment of Adult Literacy	Sheida White
2000-07	"How Much Literacy is Enough?" Issues in Defining and Reporting Performance Standards for the National Assessment of Adult Literacy	Sheida White
2000-08	Evaluation of the 1992 NALS Background Survey Questionnaire: An Analysis of Uses with Recommendations for Revisions	Sheida White
Literacy of adults – international		
97-33	Adult Literacy: An International Perspective	Marilyn Binkley
Mathematics		
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
1999-08	Measuring Classroom Instructional Processes: Using Survey and Case Study Field Test Results to Improve Item Construction	Dan Kasprzyk
Parental involvement in education		
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1999-01	A Birth Cohort Study: Conceptual and Design Considerations and Rationale	Jerry West
Participation rates		
98-10	Adult Education Participation Decisions and Barriers: Review of Conceptual Frameworks and Empirical Studies	Peter Stowe
Postsecondary education		
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Postsecondary education – persistence and attainment		
98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96-98) Field Test Report	Aurora D'Amico
1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
Postsecondary education – staff		
97-26	Strategies for Improving Accuracy of Postsecondary Faculty Lists	Linda Zimbler
2000-01	1999 National Study of Postsecondary Faculty (NSOPF:99) Field Test Report	Linda Zimbler

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Private schools		
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97-07	The Determinants of Per-Pupil Expenditures in Private Elementary and Secondary Schools: An Exploratory Analysis	Stephen Broughman
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Projections of education statistics		
1999-15	Projected Postsecondary Outcomes of 1992 High School Graduates	Aurora D'Amico
Public school finance		
1999-16	Measuring Resources in Education: From Accounting to the Resource Cost Model Approach	William J. Fowler, Jr.
Public schools		
97-43	Measuring Inflation in Public School Costs	William J. Fowler, Jr.
98-01	Collection of Public School Expenditure Data: Development of a Questionnaire	Stephen Broughman
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1999-02	Tracking Secondary Use of the Schools and Staffing Survey Data: Preliminary Results	Dan Kasprzyk
Public schools – secondary		
98-09	High School Curriculum Structure: Effects on Coursetaking and Achievement in Mathematics for High School Graduates—An Examination of Data from the National Education Longitudinal Study of 1988	Jeffrey Owings
Reform, educational		
96-03	National Education Longitudinal Study of 1988 (NELS:88) Research Framework and Issues	Jeffrey Owings
Response rates		
98-02	Response Variance in the 1993-94 Schools and Staffing Survey: A Reinterview Report	Steven Kaufman
School districts, public		
98-07	Decennial Census School District Project Planning Report	Tai Phan
1999-03	Evaluation of the 1996-97 Nonfiscal Common Core of Data Surveys Data Collection, Processing, and Editing Cycle	Beth Young
School districts, public – demographics of		
96-04	Census Mapping Project/School District Data Book	Tai Phan
Schools		
97-42	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
98-08	The Redesign of the Schools and Staffing Survey for 1999-2000: A Position Paper	Dan Kasprzyk
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Schools – safety and discipline		
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Software evaluation		
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Staff		
97-42	Improving the Measurement of Staffing Resources at the School Level: The Development of Recommendations for NCES for the Schools and Staffing Survey (SASS)	Mary Rollefson
98-08	The Redesign of the Schools and Staffing Survey for 1999-2000: A Position Paper	Dan Kasprzyk

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Staff – higher education institutions		
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96-17	National Postsecondary Student Aid Study: 1996 Field Test Methodology Report	Andrew G. Malizio
97-15	Customer Service Survey: Common Core of Data Coordinators	Lee Hoffman
97-35	Design, Data Collection, Interview Administration Time, and Data Editing in the 1996 National Household Education Survey	Kathryn Chandler
98-06	National Education Longitudinal Study of 1988 (NELS:88) Base Year through Second Follow-Up: Final Methodology Report	Ralph Lee
98-11	Beginning Postsecondary Students Longitudinal Study First Follow-up (BPS:96-98) Field Test Report	Aurora D'Amico
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Violence		
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Vocational education		
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