

USING INTERNET-BASED SURVEYS TO MEASURE CUSTOMER SATISFACTION

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1. Introduction

The National Center for Education Statistics (NCES) has been under increasing pressure to “improve Federal program effectiveness and public accountability by promoting a new focus on results, service quality, and customer satisfaction.” Maintaining the status quo is not acceptable, as evidenced by recent statutory and regulatory requirements, such as the Government Performance and Results Act of 1993 (GPRA) to “provide for the establishment of strategic planning and performance measurement in the Federal Government.”

NCES is responsible for collecting, analyzing, and disseminating statistics relating to the status of education in the United States. NCES “products” include publications of general education statistics or the results of specific sample surveys on educational topics; databases available through the agency Web site and on electronic media such as CD-ROMs; and data standards published in hard copy and electronically. NCES “services” include an extensive Web site; ways for the public to order copies of NCES products; responses to questions from the public about NCES data and about how to use NCES databases; and special research programs such as a “fellows” program and licensing agreements that allow researchers access to data files containing personal or institutional identifying information.

NCES assembled a customer service team in 1995 to initiate and oversee many customer-related initiatives, ensure an “ongoing and continuing” customer feedback system, and develop and track customer service measures, standards, and performance. NCES has been conducting customer satisfaction surveys since 1996; follow-on surveys were conducted in 1997, 1999, and 2001. Since 1997, the surveys have asked samples of various groups of potential NCES “customers” about their use of and satisfaction with selected NCES “products” or categories of “product.” “Customers” are defined as individuals who could benefit from NCES products and services because of their responsibilities within the education community as policymakers, researchers, or journalists.

In 2001, NCES conducted its fourth customer satisfaction survey. The paper will describe the internet-based data collection methodology used in 2001 and some key findings of the survey. We will also describe how results of the 2001 survey were used to address the performance indicators of the Center under GPRA and how they were used to identify areas of future performance planning.

2. Data collection methodology

Like the 1997 and 1999 survey instruments, the 2001 questionnaire focused on use of and satisfaction with NCES products and services. The 2001 questionnaire, however, was more detailed in some respects than in the earlier surveys. Questions were asked about use of and satisfaction with individual publications, databases, and web pages rather than about all the products from each major NCES survey or data system. Table 1 compares the four NCES customer surveys conducted so far.

Table 1.—NCES customer surveys, 1996–2001

	1996	1997	1999	2001
Population	15,396	20,033	40,655	53,577
Sample	4,760	2,980	3,284	3,996
Initial contact method	Mail	Mail	Mail & Internet	Internet & Mail
Response rate before follow-up	34%	27%	45%	34%
Follow-up method	Telephone	Telephone	Telephone	CATI
Response rate after follow-up	40%	84%	79%	83%

In all four surveys, “core” population groups have included Federal, state, and local policymakers and academic researchers. In 2001, additional groups included researchers at education associations, education journalists, public library directors, and NCES “ancillary” groups. “Local policymakers” include presidents or research directors at higher education institutions and superintendents of local school districts. NCES “ancillary” groups include members of various NCES advisory panels and holders of restricted-use data licenses. Education association researchers and education journalists were also included in the 1999 survey.

The 2001 questionnaire gave respondents the opportunity to provide more comments than in past surveys. Comments were requested for all cases of dissatisfaction, and a comment box for that purpose automatically appeared on the screen for those completing the survey on the Web and as a reminder to telephone follow-up interviewers. In addition, Web sample members could click on links to lists of publications and databases and to the actual Web pages about which questions were being asked; mail sample members were provided a supplementary list of publications.

Another change to the survey instrument benefits NCES program managers by making the information on use and satisfaction more current. The reference period continued to be the last two years, as in 1999. However, all users were asked whether their most recent use was in the last 12 months, 1–2 years ago, or longer than 2 years ago or never. Thus, it will be possible to isolate the usage and opinions of the most recent users from those with less current experience.

Beginning in 1999, NCES began to move to use of the World Wide Web for survey administration. Web surveys provide instantaneous results; save on postage, printing, and resources used to stuff and mail; shift data entry to respondents; capture opened comments automatically; improve data quality by making skip patterns difficult to avoid; make examples of products and services very accessible to respondents; and increase user awareness through Web links imbedded in the on-line questionnaire.

In the 1999 survey, NCES used a split mode of administration. Initially, half of the sample were contacted by real mail and asked to complete and return a paper questionnaire; the other half were contacted by electronic mail and asked to complete the survey through a special World Wide Web page. The experiment was considered a success because there were no significant differences between overall response rates, item non-response, or substantive responses to individual items. However, administration through e-mail and the Web is faster and less expensive. Therefore, e-mail recruitment and Web completion became the primary mode of data collection in 2001. Paper questionnaires were mailed only to members of the sample for whom correct e-mail addresses were unavailable (because the sample members did not have e-mail, preferred paper administration, refused to provide their e-mail addresses, or could not be contacted in time to be asked for e-mail addresses). Cover letters accompanying paper questionnaires, and the questionnaires themselves, included the Web site address and individual access

codes; many members of the mail sample did use the Web site to respond to the survey.

Despite widespread use of the World Wide Web in the United States, it was still not possible to conduct the 2001 survey entirely over the Web, even though the population of interest consisted of educational institutions and college-educated professionals. Between sample selection and data collection, a “respondent identification canvass” was necessary. Sample units fell into two categories: institutions and individuals. Institutional units included school districts and colleges and universities; OERI laboratories; general-interest newspapers and education publications; education associations; and public libraries. In these units, the individual representative of the institution was not known.

All institutions were called in September 2001 to identify a relevant respondent. If there were several, one was selected randomly. Individual respondents included Federal and state policymakers, members of the American Education Research Association, members of various NCES advisory and liaison panels, and holders of NCES restricted-use data licenses. It was necessary to call some of them to supplement the information received in the sample frame lists, particularly to obtain e-mail addresses.

In some cases, institutional policy or personal preference forbade provision of the respondent’s e-mail address. Some small public libraries and school districts still do not have Internet access, and thus no e-mail. E-mail addresses were tested using a commercial program that queries e-mail routers without requiring that a message actually be sent. When an e-mail address could not be confirmed, it was reviewed for possible errors in the source or the person to whom it was referred was called to obtain a correction. However, confirmations or corrections could not be obtained in all cases. The result was that 21 percent of the sample could not be reached by e-mail. All mailings included information about how to access the Web site on which the on-line questionnaire resided.

The implementation of a dual-mode design required two versions of the questionnaire. Content was the same in both, but the formats differed somewhat. The Web site contained a list of major NCES data collection programs and asked the respondent to indicate whether he or she had used any products from each during the past two years. Then questions about use of and satisfaction with individual products were asked only for the surveys the respondent had reported using. In the paper version, each screen

question about general use of the products of a survey was followed immediately by use and satisfaction items for those who reported usage of any survey product in the past two years. A PDF version of the paper instrument was placed on the Web site as an option for members of the Web sample. If they so chose, members could download and print the PDF version, complete the survey on paper, and return the survey by mail or fax.

The self-administered Web version of the questionnaire was also adapted to serve as a computer-assisted telephone interviewing (CATI) system for follow-up with nonrespondents. The adaptation to CATI consisted of replacement of references to what could be seen on the screen with verbal instructions. For instance, the first Web site question, and its instructions, read:

What area(s) of education do you work in or are you particularly interested in? Please mark one box in the first column to indicate a primary area [of interest in education] and as many boxes as you wish in the second column to indicate other areas.

For telephone administration, this item had to be converted into:

I am going to read you a list of different areas of education that you might work in or be interested in. Please tell me which one is your primary area and any others that you also work in or are interested in.

These changes are comparable to what would be required to adapt a questionnaire to telephone administration from a paper form of self-administration.

Adapting the Web version for telephone administration permitted the data entered by a telephone interviewer to be downloaded directly into the same data file as the personal responses through the Web site. The Web site was also used for data entry from the small number of paper questionnaires received. Obviating data entry from paper questionnaires is a major advantage of Web administration, since the respondents do their own keying. Web respondents and telephone interviewers also keyed responses to open-ended questions. In 1999, resources had not been available to key the responses to all of the open-ended items on the paper questionnaires used in mail administration and telephone follow-up (CATI was not used in 1999). With most of the open-ended responses being keyed during self-administration or

telephone administration in 2001, it was practical to key all of the open-ended responses on paper questionnaires and build a single data file containing all such responses. These were provided to NCES for distribution to individual program administrators.

Data collection took place over a period of about 12 weeks, from October 15, 2001 to January 10, 2002. E-mails were sent to 3,343 persons for whom correct addresses were thought to be available on October 15, 2001. Of these, about 425 were rejected as undeliverable from various points in the Internet. Some of these cases were recontacted and e-mail address corrections were obtained; others had to be converted to regular mail. The initial message, over the name and title of the director of NCES, introduced the survey, provided the Web site address as a hyperlink, listed contacts for technical and content questions about the survey or the Web site, and included each sample member's identification number and access code. Follow-up messages were sent to nonrespondents 1–2 weeks after the first message. After the conclusion of telephone interviewing, e-mails were sent to non-respondents for whom correct e-mail addresses were available on December 27, 2001 and January 3, 2002.

Initial mailings were staged as definitive decisions to mail were reached, beginning October 15, 2001. Each initial mailing consisted of a cover letter over the signature of the director of NCES with the same content as the initial e-mail message but with additional information about responding by mail; a printed questionnaire; a supplement listing reports and Web site addresses that were available as links on the Web site questionnaire; and a postage-paid reply envelope. Postcard reminders were sent to all mailing recipients about one week later. One follow-up mailing, including the same materials as the first but with a different text in the cover letter, was sent to nonrespondents.

Telephone follow-up to both mail and e-mail/Web nonrespondents began on November 15, 2001. The survey Web site was used as a computer-assisted telephone interviewing system with separate version of the questionnaire adapted for telephone administration. General telephone follow-up ended on December 21, 2001, but limited follow-up in groups with low response rates continued until January 10, 2002. In the last round of telephone interviews, questions were limited to "critical items" as described below. Interviewers left reminder messages when not able to conduct interviews. Additional telephone calls were made until sample members responded (by telephone, Web, or mail) or explicitly refused, or the

field period ended. To accommodate some sample members, copies of the mail questionnaire were sent by fax with instructions about how to fax it back after completion.

For telephone follow-up, a list of “critical items” was developed for situations in which a potential respondent refused to spend the time required for the full questionnaire but was willing to participate in a short interview lasting up to five minutes; a total of 26 responded only to the critical items. Fifteen members of the sample refused, by e-mail or by notes on or with otherwise blank paper questionnaires, on the grounds that they knew nothing about NCES or its products and services and did not use them. Since non-users would skip most of the questionnaire, non-use responses were imputed in these cases. Although a few items about reasons for non-use and alternative data sources were thus left unanswered, these imputed responses did provide useful information about overall familiarity and usage rates within specific strata.

Overall, 3,259 responses (including critical item responses and imputations) were obtained from a sample of 3,952 after deduction of out-of-scope sample, for a response rate of 83 percent. (See table 1 for comparisons to earlier surveys.) Of the responses, 60 percent came through the Web site, 30 percent through telephone follow-up, 9 percent by mail, and 1 percent by fax. Response rates varied by customer group, from 73 percent for federal policymakers and academic researchers to 91 percent for public library directors. Other response rates were 76 percent for state policymakers, 77 percent for education association researchers and education journalists, 89 percent for local policymakers, and 90 percent for NCES ancillary groups.

The 2001 survey included detailed questions about use of and satisfaction with many individual NCES publications, databases, and Web site pages, permitting identification of the least used and least satisfactory products. Respondents who reported that they had used a product or service within the last two years were asked to indicate their satisfaction with it on a five-point scale: “very satisfied,” “satisfied,” “neither dissatisfied nor satisfied,” “dissatisfied,” and “very dissatisfied.” All “dissatisfied” responses were followed in the various questionnaire versions with an open-ended question asking for an explanation of the reasons for dissatisfaction. The same scale was used for satisfaction with key aspects of publications and databases in general.

3. Selected trends, 1997–2001

Since NCES has been conducting customer satisfaction surveys since 1996 and has been asking some of the same questions since 1997, it is possible to measure trends in satisfaction over a period of several years. Table 2 shows overall satisfaction ratings (percent of users “very satisfied” or “satisfied”) with key aspects of NCES publications, databases, and services, in the three surveys conducted between 1997 and 2001.

Table 2.—Satisfaction trends, 1997–2001 (percent)

	'97	'99	'01
Comprehensiveness of pubs.	88	91	90
Timeliness of publications	72	77	74
Utility of publications	86	89	90
<i>Overall quality of pubs.</i>	90	93	95
Comprehensiveness of data files	82	87	88
Accuracy of data files	74	82	86
Timeliness of services	89	93	83

Satisfaction has also been measured since 1997 for three NCES “flagship” publications (four in 2001). Satisfaction has been as high for these individual publications as for publications in general (Table 3).

Table 3.—Satisfaction trends for NCES “flagship” publications, 1997–2001 (percent)

	'97	'99	'01
Condition of Education	91	93	92
Digest of Education Statistics	90	93	92
Projections of Educ. Statistics	86	88	88
Education Statistics Quarterly	—	—	88

4. Selected 2001 findings

A change in the 2001 survey was a shift in focus from satisfaction with products in general program areas to publications and data bases based on specific data collection programs or individual surveys. In 2001, satisfaction was measured for products in 5 different areas (elementary and secondary education; higher education; educational assessment; longitudinal studies; library studies). These included publications, public-use databases and data user tools, Web pages on the NCES Web site, data standards tools published or made available by NCES, and specific types of assistance, such as “help in locating publications. Most of these products and services had not been rated separately in previous surveys. Thus, trends are not available, but it was possible to determine which products and services had unusually low satisfaction levels and could be the targets for improvement. Satisfaction levels among

actual users under 85 percent were unusual. Table 4 shows satisfaction with the most frequently used databases in each program area.

Table 4.—Satisfaction with frequently used NCES databases, 2001 (percent)

Database	Satisfaction
Common Core of Data (CCD) Data or Address Files	86
National Public School & School District Locator	96
Integrated Postsecondary Education Data System (IPEDS) College Opportunities On-Line	89
IPEDS Peer Analysis System	87
Nat. Assessment of Ed. Progress (NAEP) Test Questions Tool	97
NAEP Data Tool	93
NAEP State Profiles	93
Electronic Code Book for Nat. Ed. Longitudinal Study of '88 (NELS:88)	82
Data Analysis System for NELS:88	82
Public Library Locator	98
Public Library Peer Comparison Tool	86

Table 5 gives similar satisfaction ratings for individual NCES Web site pages.

Table 5.—Satisfaction with NCES Web site pages, 2001 (percent)

Web page	Satisfaction
Common Core of Data Web Site	87
Schools & Staffing Survey Web Site	81
Private School Univ. Survey WS	75
Nat. Household Educ. Survey WS	92
Nat. Forum on Ed. Stats. Web Site	96
Fast Response Survey System WS	91
Integrated Postsecondary Education Data System (IPEDS) Web Site	89
IPEDS Web data collection	86
Nat. Postsec. Student Aid Study WS	88
Nat. Study of Postsec. Faculty WS	93
Postsec. Ed. Quick Info. System WS	96
National Household Education Survey WS (adult education)	98
Nat. Assessment of Ed. Progress WS	95
3rd Int. Math. & Science Study WS	94
Early Childhood Long. Study WS	96
Nat. Ed. Long. Study of 1988 WS	86
Beginning Postsec. Students WS	90
Baccalaureate & Beyond Web Site	96

WS = Web Site

Since all satisfaction questions followed screen questions about whether the respondent had used the

product or service in the last year, last two years, or more than two years ago or never, the 2001 survey provided data for estimates of numbers of users within the targeted populations of potential customers, and determination of the most-used and least-used publications, databases, and services. Since practicality limited the survey to key, easily definable customers groups, many users were omitted from these estimates.

4. GPRA performance indicators

Before the 1997 survey, NCES developed a set of performance indicators to measure its responsiveness to the public. These indicators included several that could be measured through data collected by a “customer” survey.

NCES’ first performance objective is to *provide timely, useful, and comprehensive data that are relevant to policy and educational improvement*. One indicator for this target that is measured by customer survey results is that at least 85 percent of surveyed customers in fiscal year (FY) 1999 and 90 percent in FY 2001 will agree that NCES data are timely, relevant, and comprehensive.

The second NCES performance objective is to *collect high quality data*. The selected indicator is that at least 85 percent of surveyed customers in FY 1999 and 90 percent in FY 2001 will agree that NCES data are of high quality.

The third performance objective for NCES is to *develop publications that are easy to read, useful, and of high overall quality*. The performance indicators measurable through a customer survey are described below.

Objective 1: Provide timely, useful, and comprehensive data that are relevant to policy and educational improvement. At least 85 percent of surveyed customers in FY 1999 and 90 percent in FY 2001 will agree that NCES publications are easy to read. Table 6 indicates the percentage of customers who were “very satisfied” or “satisfied” with three aspects of NCES publications and databases. NCES has been meeting its targets except in the area of timeliness.

Table 6.—Satisfaction with aspects of NCES publications and databases (percent)

	Pubs.		Databases	
	1999	2000	1999	2001
Timeliness	77	74	67	71
Relevance	89	90	—	—
Comprehensiveness	91	90	87	88

Objective 2: Collect high-quality data. At least 85 percent of surveyed customers in FY 1999 and 90 percent in FY 2001 will agree that NCES data are of high quality. Table 7 shows satisfaction levels (percent “very satisfied” or “satisfied”) with aspects of NCES databases and user tools.

Table 7.—Satisfaction with aspects of NCES databases and user tools (percent)

	1999	2001
Database documentation	77	71
Accuracy	82	85
Overall quality	87	89

Objective 3: Develop publications that are easy to read, useful, and of high overall quality. At least 85 percent of surveyed in FY 1999 and 90 percent in FY 2001 will agree that NCES publications are easy to read, useful in their work, and express satisfaction with overall quality. Table 8 displays indicators relevant to these objectives. Satisfaction ratings have been around the NCES targets with little change from 1999 to 2001.

Table 8.—Satisfaction with aspects of NCES publications (percent)

	1999	2001
Ease of understanding	90	87
Useful in their work	89	90
Overall quality	93	95

Results of questionnaire items addressing these indicators have been overwhelmingly positive since 1997, and NCES has met almost all of these very ambitious objectives except for the timeliness of its data and publications. At such high levels, statistically significant improvements are difficult to achieve and statistically significant declines over time have been unusual. Table 4 shows satisfaction trends within “core” groups only, which differed somewhat.

5. Future areas of performance planning

The findings delivered to senior NCES managers have been discussed and used to identify areas for

future emphasis and staff attention and to plan the types of data to collect. The extensive open-ended comments collected from the small numbers of dissatisfied customers in the 2001 reports were delivered in verbatim format to senior NCES managers responsible for the various products that had been rated in this way verbatim (without identification of the respondents who had made the comments). Some comments referred to the performance of individual, identified NCES staff members. These comments have been discussed with those individuals.

Among the activities affected by the results of the NCES customer surveys have been increased support for training programs. The surveys had revealed that NCES data collection programs were not well known or widely used among some target publics. Additional training opportunities for potential users, to facilitate greater use of the data, have been one of the responses to this finding.

Another reaction to the customer survey results has been in developing different types of publications for various types of customers. Greater emphasis has been placed on making these reports more useful to the surveyed customer populations. Planning for NCES “Issue Brief” and “Stats in Brief” series, and the style of presentation of these publications, have been affected by the customer evaluations revealed by the surveys.

The customer surveys have documented achievement by NCES of very ambitious GPRA performance indicators. These achievements have been incorporated into agency budget requests submitted to the Office of Management and Budget (OMB).

The customer satisfaction surveys brought the need for improvement in the timeliness of publications and databases to the attention of the Center. NCES has plans to streamline its publications process to reduce the interval between data collection and release.