

## Electronic and Mail Self-Administered Questionnaires: A Comparative Assessment of Use Among Elite Populations

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### Overview

Although the introduction of computer self-administered questionnaires (CSAQ) is a recent development, the possibilities offered by this novel mode of data collection are increasing as researchers develop and refine the link between survey methodology and a rapidly changing computer technology. As an increasing number of individuals, households, and organizations establish connections to the Internet, the World Wide Web (WWW) has become another feasible and efficient electronic alternative (and supplement) to self-administered mail surveys. Relatively little is known, however, about the procedures and problems associated with developing dual mode paper and Web questionnaires, the likelihood of survey populations responding, especially when given the option of responding either by mail or electronically, and how respondents to a Web questionnaire may differ from those responding to the same paper instrument.

This paper presents findings from the 1999 *National Study of Postsecondary Faculty (NSOPF:99)* field test which assessed the use of comparable electronic and paper questionnaires that were made available to a nationally representative sample of 162 higher education administrators and 500 faculty in those same institutions<sup>1</sup>. (NSOPF:99 is sponsored by the U.S. Department of Education's National Center for Education Statistics with support from the National Science Foundation and the National Endowment for the Humanities.) Two separate questionnaires were tested, an *Institution Questionnaire* for administrators and a *Faculty Questionnaire* for faculty and instructional staff. Both administrators and faculty had the option of completing either the paper questionnaire or an electronic version of it. Of particular interest is the fact that this dual mode survey was made available

to an "elite" population of institutional staff and individuals, the overwhelming majority of whom are likely to be connected to the Internet through their offices and/or homes and are likely to be more familiar with computer technology and its applications than the general population. The findings will specifically focus on: (1) the problems involved in maintaining comparability between paper and electronic questionnaires in a dual mode survey; (2) the questionnaire choices made by these two groups of respondents; (3) respondent burden; and (4) the characteristics of the two respondent groups.

### NSOPF:99 Study Design

NSOPF:99 is the most comprehensive study of higher education institutions and faculty to be conducted. The purpose of the study is to provide trend data on faculty workload, productivity, compensation, career and retirement plans, and attitudes. Designed as a recurring, national cross-sectional survey of two- and four-year (and above) postsecondary faculty, NSOPF consists of two components: an institution survey and a faculty survey. In the earlier 1993 NSOPF<sup>2</sup> cycle, 962 institution administrators were mailed a questionnaire for self-administration, prompted by mail and telephone, and non-respondents were offered the opportunity to complete the questionnaire by telephone. (Of a 90 percent response rate, 80 percent completed a mail questionnaire and 10 percent completed a telephone interview.) Likewise, over 31,000 faculty were mailed a self-administered questionnaire, repeatedly prompted by mail and telephone, and non-respondents were given the opportunity to complete a CATI version of the instrument. (Of an 87 percent faculty response rate, 70 percent completed a mail questionnaire; 17 percent completed a CATI.) That was the survey design for the 1992-93 NSOPF.

The Gallup Organization is currently conducting NSOPF:99. Five years later, the study has undergone several design changes to take advantage of recent

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<sup>1</sup> This paper was originally presented with preliminary field test findings at AAPOR on May 15, 1998, in St. Louis, MO. The findings have been finalized and updated for publication.

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<sup>2</sup> See *Methodology Report: 1993 National Study of Postsecondary Faculty* (U.S. Department of Education, National Center for Education Statistics [NCES 97-467]) October, 1997.

advances in computer technology. In addition to MSAQ<sup>3</sup> and CATI, both institution administrators and faculty are also offered the option of completing a computer self-administered questionnaire (CSAQ) on the WWW. Previously, the mail questionnaire was delivered first, to be followed by an offer to non-respondents to complete a telephone interview near the end of the data collection period. Another change in NSOPF:99 involves giving all respondents the option of completing either a MSAQ or CSAQ questionnaire at the outset of the surveys. Further, in addition to mail and telephone prompts, both administrators and faculty were prompted electronically during the field test whenever an email address was available. Thus, the once dual-mode (mail and telephone) NSOPF:93 has been transformed into a multi-modal (mail, telephone, Web) NSOPF:99 study.

### Features of the NSOPF:99 Web Questionnaires

The newly emerging computer technology offers a range of possible choices in designing a Web questionnaire. In designing the NSOPF:99 Web questionnaires, our overriding goal was to produce a user friendly instrument that would, in addition to allowing us to collect survey data virtually instantaneously, combine the advantages of both paper and computer-assisted interviewing technologies. What was ultimately developed for NSOPF:99 can be described as a cross between a paper questionnaire and computer-assisted interviewing, incorporating many of the advantages of both designs.

Like paper self-administered instruments, the NSOPF:99 Web questionnaires allow respondents to lead themselves through the questionnaire at their own pace, "putting it down" at any time and returning to it at their choosing. They have the capability of navigating the questionnaire in its entirety which is comparable to flipping through the pages of a paper questionnaire. If sufficiently motivated, Web respondents, like paper respondents, can take the time to seek out records and documents to aid in the accurate completion of the survey. As in paper questionnaires, response order effects are also diminished by allowing the respondent to view all response options at once before answering an item. And like a paper questionnaire, respondents have the ability to scroll forwards and backwards to correct responses at any time.

Our Web questionnaires also share many of the features found in most CATI systems. Skip patterns were programmed into the instrument to structure and ease the flow of navigation. Like a CATI, NSOPF:99 Web included error, range, and inter-item consistency checks that signaled the respondent. (Inter-item consistency checks were actually limited in order to closely approximate the paper questionnaire—see "Maintaining Comparability Among Questionnaires" below.) These built-in features mirrored computer-assisted systems, thus shortening the time needed to clean and edit the data. Finally, as in CATI and other computer assisted techniques, the data is immediately entered into a database and does not need to undergo the pre-processing steps (e.g., entering the status of mail questionnaires; scanning or key entering; verification; etc.) associated with paper questionnaires.

Despite sharing some advantages of both paper and CAQ (computer-assisted questionnaires), Web questionnaires suffer from several limitations. With the range of computer configurations and capacities currently available, respondents are likely to have a wide range of Web browsers and operating systems with varying capabilities in use. The mix and variety of systems places limits on the design of Web questionnaires, especially if the aim, as in our case, is to make the Web available to the largest number of respondents. There are many new technologies that could improve the ease of using Web surveys, such as "drop down" screens (in which the respondent clicks on a box and the list of responses pops up), and capabilities to perfectly replicate the look of the paper questionnaire on the screen. However, if a user has a low browser version or an older operating system, they will not be able to view the questionnaire in the intended way. In both of the Web questionnaires discussed in this paper, we designed the questionnaires to accommodate the lowest type of commonly used browser (version 2.0). In doing so, we sacrificed opportunities to employ more sophisticated features of the Web which are only available on higher versions of the browsers. Moreover, users with slower hard drives or less memory on their computers may find the lag time between questions to be longer and less efficient than those with faster machines. It may have been the case in our Web surveys that users with slower machines chose to simply answer the paper instrument instead of spending the extra time to reply on the Web.

Though not critical to the actual functioning of a Web questionnaire, the type of operating system may also affect the look of survey. Macintosh operating systems, for example, have a different palette of colors than

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<sup>3</sup> For purposes of simplicity and symmetry, we refer to mail, self-administered questionnaires as MSAQ.

Windows operating systems, and thus any colors programmed into a Web page will not be uniform across systems. Even the shades of gray on purely black and white monitors may differ by operating system. The appearance of font types and sizes will also differ by operating system, depending on the availability of the font. Thus, even though we designed our questionnaires in black and white with a very simple font (Times New Roman), we discovered that it was impossible to create a standard look for our Web instruments.

### **Maintaining Comparability Among Questionnaires**

One of the first challenges that we encountered in the NSOPF:99 field test was that of ensuring comparability<sup>4</sup> among the three questionnaires: MSAQ, CSAQ, and CATI. In the 1993 NSOPF, the emphasis focused on ensuring that the CATI questionnaire conformed as closely as possible to the MSAQ, within the limitations that each mode of data collection permit. Now the task revolved around ensuring that all three questionnaires remained comparable, a more daunting task to be sure. Once again, the MSAQ served as the standard against which the Web (and CATI) questionnaires were developed. Several challenges had to be overcome to ensure comparability between the MSAQ and Web questionnaires. These included:

***Number of questions per page and skip patterns.*** In order to make the two questionnaires comparable, at least in page length, it would have been necessary to include the same number of questions appearing on each page of the paper questionnaire on the Web version. This was not feasible. The Web allows for the programming of skip patterns (and other checks), but the number of questions on a page is largely dependent on a respondent's actual responses. In other words, the program needs to be able to process the data just entered by a respondent in order to determine which question should appear next. Therefore, any time a question's responses resulted in a skip pattern that question had to appear last on the page so that the information could be first processed in order to bring up the next appropriate question. Similarly, any time we wanted to build in an edit or error check—such as checking whether percentages add up to 100%—we needed to end the page in order to perform that check. This limitation resulted in the proliferation of Web pages with only a single question. Thus, the two Web versions of the questionnaires had substantially more

“pages” than the paper versions of the questionnaire (67 electronic pages versus 31 paper pages for the *Faculty Questionnaire*, and 58 electronic pages versus 14 paper pages for the *Institution Questionnaire*). Of course, the actual number of pages that a respondent to the Web questionnaires had to wade through depended on his/her actual response choices. Nevertheless, the fact that so many additional pages were added to the Web questionnaires, from twice as many for the *Faculty Questionnaire* to four times as many pages for the *Institution Questionnaire*, increased the overall length of the questionnaire, making responding to the Web versions a potentially more time-consuming task.

### ***Layout of questions on a page and treatment of grids.***

Another challenge to matching the Web questionnaire to the paper version focused on the layout of questions and response choices in column-oriented formats or grids. Both paper questionnaires included a number of grids. In the navigation of a Web questionnaire, users are prepared to read the questions, click on responses, and move on to the next page when instructed to do so. With some training, the user can learn to scroll down the screen to ensure they have read all questions on a page. We “taught” respondents this behavior in our Web questionnaires by placing the navigational buttons at the bottom of the screen, ensuring that the user would have to scroll down the side in order to read all of the information on a page. However, when questions were presented in a columnar format, such as a two-column design or a grid with multiple columns, a Web user would be required to answer questions down to the bottom of a column, and then would need to scroll back up to the top of the page to complete the next column of questions. There are several risks in this design. First, the user may choose to answer the grid questions in a horizontal order instead of the intended vertical order. This may result in reporting error. Second, and worse, the user may complete the first column correctly, but then forget to respond to subsequent columns before moving to the next page. This can result in high levels of item non-response for columnar questions.

To overcome these problems in the Web questionnaires, we abandoned the two column design, replacing it with a single column of questions on each page. We also broke out many of the complex grid questions into individual columns. In most column-oriented grids, once the respondent completed one column of questions, they clicked to the next screen where the next column would appear with the same row questions. Wherever possible, we inserted skip patterns so that only the required number of columns would

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<sup>4</sup> The discussion that follows is limited to a review of the MSAQ and CSAQ questionnaires.

appear. For instance, in the *Faculty Questionnaire*, we asked a series of questions about each credit class the faculty member taught. If they indicated in an earlier question that they only taught three classes, only three pages of columns would appear (one for each class). After the third class, they would be skipped to the next item. This feature of the Web design resulted in a very different page layout and flow than the paper version of the questionnaire. However, its major compensating feature was that it was more likely to reduce measurement error.

**Navigation and knowledge of the burden request.** In a pencil-and-paper survey, it is easy for a respondent to review previous answers and change them if necessary. A respondent can flip back and forth through a questionnaire booklet stopping at any question virtually at will. Another advantage of the paper mode is the respondent's immediate knowledge of the length of the instrument (i.e., respondent burden), a fact that can be estimated by examining the size of the booklet, the number of questions, or its page length. The respondent's knowledge of the question number and page number also tells him/her how many questions/pages remain and can, in the absence of interviewer prodding, serve to encourage (or discourage) a respondent from completing a self-administered paper questionnaire. In the NSOPF:99 Web questionnaires this prior knowledge of estimated respondent burden of the paper questionnaires was not present. Rather, a deliberate decision must be made to program this feature into the questionnaire design. We decided against programming it into the Web version of the *Institution Questionnaire*. Thus, respondents who became irritated with the length of the instrument at, say, Question 25 had no idea that only one question remained, unless they had the paper version to consult. Furthermore, this lack of a navigational system forced respondents who wished to edit an earlier question to return to that item by scrolling back through the instrument, item by item. While this was not a common practice, certain questions asked later in the *Institution Questionnaire* were dependent on the answer provided in Question 1. Therefore, if the respondent realized in these later questions that they were dissatisfied with their response to Question 1, they were then forced to scroll back through all of their responses until they reached the first question. We received several comments from users that this was a needlessly time-consuming task.

In contrast, for the Web version of the *Faculty Questionnaire*, we decided to program in a navigational tool to allow for easier movement throughout the entire

instrument. By inserting a "Jump to page" scroll bar at the top of every page, users were not only able to see how far along they were in the survey, but they could also easily jump around in the instrument to change previous answers when necessary. In the Web questionnaire for the full-scale survey, this feature will be combined with strict editing checks, so that when an earlier question is changed, all skip patterns will be rechecked to ensure that subsequent questions do not need to be re-asked.

**Inter-item consistency checks and edit checks.** One of the advantages of CSAQ is the ability to program in error, range, and inter-item consistency checks. The advantage of these checks is to improve the quality of the data collected, reduce the time needed for data cleaning and follow-ups to retrieve missing data and to correct inconsistencies. However, if our goal was to truly replicate the paper version of the questionnaire, we would not have built any automated checks into the questionnaire, since such checks are not possible on a paper instrument. We tested two different strategies in the NSOPF:99 field test. For the Web version of the *Institution Questionnaire*, we programmed in strict edit checks whenever possible. These checks prevented the user from moving forward in the instrument until they had corrected the error. We received several complaints from users that the checks were too stringent. In some cases, according to the respondent, the true data from an institution was actually inconsistent, and the Web forced them to provide erroneous data in order to continue entering their responses to subsequent questions.

In contrast, for the Web version of the *Faculty Questionnaire*, we chose a design that more closely approximated the paper instrument, that is, not programming in any edit checks into the instrument. This "free form" application allowed users to make errors, provide inconsistent responses, and to enter numbers that were out of range. The major advantage of this design is that it more closely approximates the paper instrument and provides the respondent with complete flexibility. The major disadvantage is a loss of power and efficiency in a Web-based system that can be used to increase data quality. For the full-scale data collection, we will recommend a strategy that falls somewhere in between strict checking and no checking at all.

#### **Data Collection Procedures for the Web Questionnaires**

The data collection procedures for introducing the Web questionnaires are described in this section. In both the

institution and faculty surveys, all respondents were given the option at the outset of data collection to complete either a self-administered paper questionnaire or the Web version of it. Telephone interviews were limited to non-response follow-ups.

**Institution data collection procedures.** Once an institutional respondent was identified by the institution, that individual was mailed a packet of information containing a paper questionnaire and other information about participation in the study. The cover letter of the packet mentioned that a Web questionnaire was also available, and directed respondents to the *Documentation and Forms Booklet*<sup>5</sup>, where information about accessing Gallup's NSOPF:99 Website could be found. At the bottom of the cover letter, respondents were provided with a 6-digit personal identification number (PIN) for use in accessing their Web questionnaire. Telephone follow-up began one week later, and paper questionnaires were re-mailed to respondents upon request. There was no additional reminder to respondents to access the Website other than what was written in the initial cover letter and packet.

The initial mailing mentioned immediately above was sent out in mid-December 1997, just as institutions were wrapping up the semester. Unfortunately, Website development took longer than was expected, and thus the Website was not actually available to respondents until January 5<sup>th</sup>, 1998. However, since respondents were most likely to be on vacation during the last two weeks of December, this delay did not cause many difficulties and likely had little impact on the results presented here.

**Faculty data collection procedures.** On March 23, 1998, a total of 512 faculty were mailed a packet containing a cover letter, a questionnaire, and a brochure about the study. The cover letter mentioned that respondents had the option of completing the enclosed paper questionnaire or a Web version of it. The Website address and a PIN number were included in the letter. All follow-up mailings (one postcard, two e-mails, and two re-mails of the paper questionnaire) encouraged respondents to complete the Web questionnaire, again reminding them of the Web address and PIN number. The Website was available

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<sup>5</sup> This booklet contained various forms to be completed by the designated individual, information about the study, the respondent's role in compiling a list of all faculty, and other related information that would assist that individual in coordinating the overall NSOPF:99 effort at the institution.

four days after the initial questionnaire packets were mailed.

### **Findings from the NSOPF:99 Field Test**

The following section discusses the findings from the NSOPF:99 field test.

**Respondent choices: MSAQ versus CSAQ.** One of the issues that both we and the sponsoring agency were keen to address asked: If given the option between responding to a mail questionnaire or a Web version which type of survey would institution administrators and faculty choose? As indicated in Table 1 below, the overwhelming majority of respondents were likely to opt for the more conventional and familiar MSAQ. Of 386 responding faculty, only 31 (8%) chose to complete the Web questionnaire, whereas 297 (77%) chose the more conventional MSAQ, and 58 (15%) provided information over the telephone in a CATI interview<sup>6</sup>. Similarly, of 131 responding institution administrators, only 22 (17%) completed a Web questionnaire as opposed to 109 (83%) who completed a MSAQ. While institution administrators selected the Web questionnaire twice as often as their faculty colleagues (8% versus 17%), the levels of Web usage in both groups pale in comparison to the MSAQ.

**Survey response rates.** When the survey response rates are considered, we find that the Web questionnaire accounted for only 7% of the faculty response rate (see Table 1), whereas it accounted for 14% of the institution response rate. (Response rates are calculated as the number of completed interviews divided by the eligible sample.) These response rates suggest once again that the mail questionnaires constitute the largest increment of the overall response rate in both surveys, although the Web increment of the institution response rate is twice as large as the faculty rate.

Table 2 shows the cumulative institution questionnaire returns throughout the data collection period. It is worthwhile to note the initial usage of the Web for survey completion during the first nine weeks (68% of all eventual Web completes), the lull in Web completions between weeks 10 and 16 (no Web surveys completed), and the final push for Web completes in the final weeks of data collection (32% of Web completes). During these same three periods, we received 64%, 15%, and 21% of all eventual MSAQ completes, respectively, suggesting a very similar trend

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<sup>6</sup> A CATI interview was not one of the original options for respondents; rather, CATI attempts were made for nonrespondents to the mail or Web options.

in survey completion for both modes among institution respondents.

Table 3 presents the cumulative weekly returns for the faculty survey. All faculty received two replacement questionnaire mailings, a postcard prompt, two email prompts, and telephone prompts for nonrespondents. In Table 3, we see slightly different trends for Web completion, with spurts of interest at some points (9 completes in week 3, and 9 completes in week 13), one or two completes in other weeks, and several weeks with no usage at all (weeks 4-6 and 14-18). In contrast, MSAQs were returned at a steady pace throughout the data collection period.

**Web completers versus non-completers.** In addition to actual Web respondents, a number of individuals logged onto the NSOPF:99 Web but did not complete the questionnaire. We hypothesize that these individuals were either curious about the Web questionnaire, encountered problems which may have prevented their completing the instrument, or had to temporarily go “off-line” for other reasons. Of 33 faculty who logged onto the Web, 26 completed the questionnaire (79%) and 7 (21%) did not complete it. Of these seven, two respondents completed and returned a MSAQ. Five individuals stopped at various points midway through the questionnaire and were counted as partial completers. The seventh individual apparently answered the entire questionnaire, but did not “seal the envelope” as instructed in order to indicate that the questionnaire was complete.

A similar number of individuals logged onto the Web for the institution questionnaire. Of 35 respondents who accessed the Web version, 22 (63%) completed the questionnaire and 13 (37%) did not. Of the 13 non-completers, 7 (54%) stopped within the first two pages of the questionnaire. Another 4 (31%) non-completers progressed midway through the questionnaire to a question sequence at which point they encountered an inter-item consistency check that would not allow them to proceed further. This question sequence had a built-in check for consistency which asked the respondent to check an earlier response and to correct it in order to proceed. A failure to correct the previous entry would hold the respondent in a loop. The remaining two respondents completed the entire questionnaire with the exception of a few key questions which had been skipped, thereby preventing us from considering the cases complete.

Additionally, there is some indication that respondents chose to “put down” the questionnaire and complete it at another time—one real advantage of self-

administered questionnaires, regardless of whether they are paper or web-based. For the 26 faculty who completed the Web version, 5 respondents took more than a single day to complete the questionnaire, ranging from 4 to 14 days between their first and last visits to the Web site. For institution respondents, 9 logged on at multiple times, including 5 who logged on over multiple days. These multiple log-ins among administrators was not unexpected, given the nature of the information asked for in the institution questionnaire. The cognitive tasks in the institution questionnaire were more likely to require the input of colleagues or checks of administrative records. The faculty questionnaire had fewer of these items.

**Characteristics of Web respondents.** Table 4 provides a summary of the institutional characteristics of all respondents who logged on to the Web, regardless of whether they completed a Web questionnaire. Among institutional respondents, Web responders were more likely to be located in four-year public or private institutions (51%) than two-year institutions (29%); however, they did log-on in proportion to their general distribution in the sample. Among faculty, Web responders were even more likely to be located in four-year institutions (60%) than two-year (18%) or other<sup>7</sup> (21%) institutions. Faculty in four-year public institutions were disproportionately more likely to attempt completing a Web questionnaire than their colleagues in four-year private schools (36% versus 24%, respectively) and logged-on to the Web site in greater proportion than their general distribution in the sample (22%). Faculty at two-year public schools were much less likely to log-on (15%) in comparison to their representation in the sample (25%).

**Respondent burden.** Respondent burden was only measured in the faculty survey, and not in the institution survey. Burden was estimated in two ways: (1) *self-reported time*—at the end of the Web questionnaire, faculty respondents were asked to report the amount of time it took them to complete the questionnaire; and (2) *recorded time*—the actual time as gauged automatically by the Web program. If respondents tended to over estimate the time it took them to complete the Web questionnaire, this overestimation could be an indication of increased burden. (Note: The recorded time algorithm for the faculty did not account for time the respondent was not logged into the Web questionnaire. Rather, it simply took the first log-on time and the final log-out time to

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<sup>7</sup> “Other” schools are more likely to be specialized institutions such as medical or religious schools.

calculate response time. By this calculation, all recorded times over 1,000 minutes [n=8] were eliminated from Table 5.)

As Table 5 illustrates, faculty reported taking 50 minutes on average to complete the Web questionnaire as opposed to the 51 minutes (average) recorded time. Both the self-reported and recorded levels of burden for the Web questionnaire compare favorably to the 55- to 60-minutes<sup>8</sup> estimated to complete the paper and CATI versions of the faculty questionnaire. Our concern that the proliferation of “pages” in the Web questionnaire, from 31 pages in the paper version to 67 (screen) pages in the Web, might increase respondent burden did not prove to be an issue (see section on “Number of questions per page and skip patterns”).

While the overall burden levels appear quite consistent between reported and recorded time, a slightly different pattern appears upon closer examination of the data. As Table 5 indicates, the tendency was for most faculty (12 of the 20 with timings) to report the Web questionnaire taking *less* time than was actually recorded. Their underreporting ranged from a low of one minute to a high of 43 minutes, averaging about 11 minutes. In contrast, 6 of the faculty reported the Web questionnaire taking *more* time than was actually recorded. Their self-reports ranged from a low of 3-minutes to a high of 24-minutes, averaging about 14-minutes. Four of the 6 respondents who overestimated the time for completion of the questionnaire did so by 10 minutes or more. Two respondents estimated the burden perfectly.

### Conclusion

The NSOPF:99 field test demonstrates that self-administered Web questionnaires are a feasible and practical alternative and/or supplement to mail self-administered questionnaires. Web surveys combine many of the advantages of self-administered mail questionnaires and computer-assisted interviewing systems. Web respondents are offered the flexibility associated with self-administered paper questionnaires while allowing survey researchers to program into the Web various system features (e.g., error, range, inter-item consistency checks, etc.) to ensure high quality data that can be delivered immediately. Beyond these advantages, the Web offers both respondents and survey researchers a direct electronic connection that allows for real-time communication via e-mail.

When mail and Web questionnaires were offered to NSOPF:99 respondents, we found that institution administrators and faculty were less likely to select the Web as their preferred mode of survey response, reverting overwhelmingly to the more conventional paper questionnaire. Initially, this finding appeared at odds with the view that administrators and faculty in higher education institutions are seen as representing an *elite* population, a group that is at the cutting edge of learning, experimentation, and technological innovation. If any segment of the population (other than computer programmers, of course) was most likely to possess the required computer technology, to be connected to the Internet, and to be adept at handling a Web questionnaire, this was the group. Our view was supported by the fact that in a recent national poll<sup>9</sup>, Gallup found that two-thirds (64%) of all respondents had access to a computer either at home or at work. More important, virtually all respondents (93%) with postsecondary education had computer access. This finding confirms what we already knew about NSOPF:99 institutions and faculty, that is, almost all institutions possess or have access to the required technology as do most faculty.

The low Web usage rate suggests to us that, while the level of computer access in the NSOPF:99 population is already high, the *cultural imperative* to use the technology is not present in equal abundance. All this is to say that technology alone is not enough, not even for elite populations like higher education administrators and faculty. Before Web (and other electronic) self-administered questionnaires become an acceptable and widely used mode of data collection, a critical threshold must be reached in the society and culture as a whole. As more and more surveys are conducted electronically, and as more government and institutional systems introduce computerization into the culture, Web questionnaires will likely become a more acceptable (and even desirable) mode of data collection similar to mail, telephone, and in-person surveys. In the meantime, we will continue offering Web questionnaires, either individually or in combination with other modes of data collection, and continue prodding respondents to use them.

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<sup>8</sup> The 55 to 60-minute estimate is based on timings of an earlier pretest version of the faculty questionnaire.

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<sup>9</sup> The poll was conducted in March 1998.

**Table 1. Type of Questionnaire and Response Rates by Mode**

Questionnaire Type	Faculty (n=512)		Response Rate	Institution (n=162)		Response Rate
	N	%	%	N	%	%
MSAQ (Paper)	297	77%	63%	109	83%	67%
Web	31	8%	7%	22	17%	14%
CATI	58	15%	12%			
Total	386	100%	82%	131	100%	81%

**Table 2. Cumulative Institution Questionnaire Returns by Mode by Week**

Week	Paper	Web	Total
1	3	0	3
2	4	1	5
3	4	1	5
4	50	6	56
5	53	12	65
6	63	12	75
7	63	12	75
8	69	13	82
9	70	14	84
10	70	15	85
11	72	15	87
12	77	15	92
13	82	15	97

Week	Paper	Web	Total
14	83	15	98
15	84	15	99
16	88	15	103
17	92	16	108
18	95	16	111
19	97	19	116
20	99	20	119
21	100	20	120
22	100	20	120
23	100	20	120
24	101	20	121
25	104	21	125
26	109	22	131

**Table 3. Cumulative Faculty Questionnaire Returns by Mode by Week**

Week	Paper	Web	CATI	Total
1	0	0		0
2	59	0		59
3	138	9		147
4	149	9		158
5	184	9		193
6	209	9		218
7	213	11		224
8	220	13		233
9	233	13		246

Week	Paper	Web	CATI	Total
10	248	15	2	265
11	263	20	4	287
12	269	22	7	298
13	276	31	13	320
14	280	31	16	327
15	288	31	18	338
16	288	31	19	339
17	297	31	35	363
18	297	31	58	386



**Table 4. Institutional Characteristics of Faculty and Institution Web Respondents**

Institutional Characteristics	Institution				Faculty			
	Sample		Web		Sample		Web	
	N	%	N	%	N	%	N	%
<b>4-Year</b>								
Public	34	21%	10	28%	112	22%	12	36%
Private	38	23%	8	23%	140	27%	8	24%
Total	72	44%	18	51%	252	49%	20	60%
<b>2-Year</b>								
Public	52	32%	9	26%	130	25%	5	15%
Private	4	3%	1	3%	20	4%	1	3%
Total	56	35%	10	29%	150	29%	6	18%
<b>Other</b>	34	21%	7	20%	110	22%	7	21%
<b>TOTAL</b>	<b>162</b>	<b>100%</b>	<b>35</b>	<b>100%</b>	<b>512</b>	<b>100%</b>	<b>33</b>	<b>100%</b>

**Table 5. Faculty Respondent Burden by Recorded and Reported Time\***

Faculty Web Respondent #	Recorded time	Reported time	Difference
1	42	60	18
2	63	60	-3
3	36	35	-1
4	59	56	-3
5	43	40	-3
6	32	35	3
7	62	60	-2
8	75	75	0
9	45	45	0
10	113	70	-43
11	53	45	-8
12	23	20	-3
13	25	35	10
14	39	35	-4
15	36	60	24
16	65	45	-20
17	40	45	5
18	27	45	18
19	77	70	-7
20	57	55	-2
MEAN	51	50	-1 (6)

\*An additional 13 cases that were excluded in Table 5 were either partial completes without a reported time or were completed over multiple days, having timings of over 1,440 minutes.