

Developing a Contact Strategy to Maximize Self-Administered Web Participation

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ABSTRACT

The continued growth of the Internet is affecting survey research in extraordinary ways. Data collection designs that include self-administered Web interviewing allow studies to capitalize on the reduced time and costs associated with collecting data on the Web. To take full advantage of these benefits, researchers must continue to identify and evaluate contacting strategies that encourage sample members' participation via the Web. The 2004/06 Beginning Postsecondary Students Longitudinal Study (BPS:04/06), a follow-up study of over 23,000 students who started their postsecondary education during the 2003/04 academic year, is one such study that has attempted to identify what contact methods are most effective in encouraging self-administered Web participation.

The contact approach used in BPS:04/06 followed Dillman's widely accepted Tailored Design mailing strategy (Dillman 2000) by including precontacts, initial lead letters, postcard reminders, and additional follow-up contacts sent via priority mail. E-mails were also sent to contacts when possible to encourage self-administered Web participation. The text of each contact attempt included the study Web site URL and a unique study ID and password needed to access the self-administered Web interview. However, within each password, a source identifier was embedded to enable the password to be linked back to the corresponding contact attempt and the related method of delivery. This allowed the project to test the theory that e-mail contacts would prove to be the most successful contact method.

This presentation will focus on the study's overall contacting strategy, including the timing and mode of each contact, and the results of the post hoc analyses used to evaluate each contact attempt. The presentation will also explore the pattern of response of the almost 10,000

completed self-administered Web interviews to identify which contacts and modes of contact provided the more immediate response versus those that yielded a more gradual response.

STUDY BACKGROUND

The Beginning Postsecondary Students Longitudinal Study (BPS) series is one of several studies sponsored by the U.S. Department of Education's National Center for Education Statistics (NCES) to respond to the need for a national, comprehensive database concerning significant issues in access, choice, enrollment, persistence, progress, and attainment in postsecondary education, in graduate and professional school access, and in consequent rates of return to nonacademic society. The purpose of the BPS:04/06 follow-up is to monitor the academic progress and persistence in postsecondary education of 2003–04 first-time beginner (FTB) students during the 3 years following initial entry into a postsecondary institution.

The respondent universe for the BPS:04/06 study consisted of all students who began their postsecondary education for the first time during the 2003–04 academic year at any postsecondary institution in the United States or Puerto Rico that was eligible for the 2004 National Postsecondary Student Aid Study (NPSAS:04). Students eligible for the BPS:04/06 full-scale study were both eligible to participate in NPSAS:04 and identified as FTBs at NPSAS sample institutions in the 2003–04 academic year. NPSAS:04, which provided the base-year data, yielded approximately 23,000 FTBs for the BPS:04/06 survey.

PREVIOUS RESEARCH

Because survey response rates have been declining over the past few years, it has become increasingly important for survey researchers to investigate the use of all tools available to help maximize study participation while producing cost-effective, high-quality data. Using the Web to collect survey data has become increasingly popular, as access to the Internet has increased for the general population (Groves et al. 2004; Crawford et al. 2002). Since the early nineties, the use of self-administered electronic modes to conduct surveys with populations that largely had

access to the Internet and e-mail has become widespread (e.g., Parker 1992; Schuldt and Totten 1994; Kittleson 1995; Mehta et al. 1995; Opperman 1995; Tse et al. 1995; Smith 1997; Schaefer et al. 1998). Student populations, which have nearly total access to the Web and e-mail (Couper et al. 2001; Kaplowitz et al. 2004), have been a prime population for successfully using the Web to collect survey data. Like mail survey methods, a benefit of using the Web is that it allows for more privacy and less social desirability bias, compared to interviewer-administered modes, for reporting on sensitive topics (Groves et al. 2004). The Web also allows survey data to be gathered and analyzed relatively quickly, minimizes data entry and editing errors, and allows for consistency checks to improve response accuracy (Morris et al. 2004).

A few studies have been conducted comparing the use of self-administered Web data collection to mail and telephone modes, and several studies have compared the use of e-mail data collection to mail data collection. Such studies realized a cost savings associated with the self-administered electronic mode used, especially with large studies, compared to the mail and telephone data collection modes. With Web surveys, unlike mail and interviewer-administered surveys, the costs do not increase as the sample increases, allowing for larger sample sizes (Groves et al. 2004). As a result, researchers had hoped that utilizing an electronic mode such as the Web or e-mail would yield response rates high enough to replace other modes, such as mail and telephone. The results on response rate comparisons have been quite mixed; however, since the turn of the century, studies comparing mail mode to e-mail and Web modes have increasingly found higher response rates with the e-mail and Web modes (e.g., Crawford et al. 2002; Heerwegh et al. 2005; Kaplowitz et al. 2004; Kypri et al. 2004).

However, using the Web (or e-mail) as a single data collection mode has some disadvantages. One disadvantage is that even with a population with high Internet coverage,

some participants are still not easily reached via the Web. They may use a browser that is not compatible with the survey, or that is too slow to load the survey or make the survey enjoyable enough to respond (Kypri et al. 2004). Some respondents are simply more motivated to complete the survey when contacted by an interviewer. Respondents who do not check their e-mail often or for whom researchers have an incorrect e-mail address may not respond simply because they are not aware that they have been selected to participate in the survey (Crawford et al. 2002). Web surveys, as with mail surveys, are affected by salience: respondents are less likely to respond on their own if they perceive the topic to be minimally relevant to them (Dillman 2000). Web surveys can also be affected by missing data (Groves et al. 2004). Finally, they have not (as of yet) consistently achieved higher response rates compared to other data collection modes such as computer-assisted telephone interviewing (CATI).

The research suggests that a multimode design that includes a self-administered Web mode, in addition to a mode such as CATI, is better suited for minimizing various survey errors associated with using the Web alone and with each mode individually (Dillman 2000). According to Groves et al., many studies now use multiple modes for their survey research. Combining the modes can result in overall reduced costs while maximizing response rates. Combining several modes can compensate for any weaknesses associated with each single mode, such as coverage and nonresponse error (Groves et al., Dillman and Tarnai 1988, Dillman 2000). A potential drawback of combining modes is that analysis could be complicated because of differences in responses to each mode (Dillman 2000).

Response Maximization Methods for Self-Administered Web Studies

Researchers generally agree that self-administered Web interviewing is an increasingly viable source of cost-effective data collection, especially when combined with other modes and

conducted on groups with adequate Web coverage. Most of the research involving self-administered Web and mixed-mode studies that include the Web utilize various response maximization methods, including both e-mail and mail as a means of initial contact and reminders, or e-mail only. Many researchers use multiple methods to increase participation for self-administered Web surveys, due to the positive effect of combining various modes of contact (Yun et al. 2000). Using e-mail to invite sample members to participate in a self-administered Web survey, whether alone or combined with other methods, is common for Web surveys (Groves et al. 2004; Plaisent et al. 2005). In the study conducted by Yun et al., the vast majority of responses were obtained as a result of the initial e-mail. Their postal mail notifications, sent before the initial e-mail, were effective as well. Porter et. al. (2003) used e-mail for the initial invitation and two follow-up contacts for a Web survey of high school students. Kypri et al. (2004) utilized various methods to encourage participation in their mixed-mode survey of college students, including a notification letter and e-mail notification for the first phase and a reminder letter and e-mail for the second phase; they then made reminder calls and sent replacement e-mails with the link to the survey. This is in line with Dillman's tailored approach (Dillman 2000). The response maximization methods used on this study are similar to those used on BPS:04/06. Almost half of their responses were a result of the initial letter and e-mail, and the response rate increased by 22.8 and 15.7 percent after the phase two and three reminders, respectively; however, the researchers did not examine the independent effects of these invitations. Couper et al. (2001) also used e-mail invitations for a Web survey of college students, and two reminders were sent. The e-mail contained a link to the survey Web site and a unique ID and password. Heerwegh et al. (2005) sent e-mail invitations for a study of college students. Their research focused on the effect of personalization of e-mail versus no

personalization on response rates. They were interested in how many sample members went to the Web to start the survey on their home page (i.e., login rate).

The research on the impact of contact mode on response rates, particularly for studies utilizing a self-administered Web mode, appears to be limited, however. This was echoed by Porter et al. (2003), as well as Kypri et al. (2004). Ruggiere and Ver Duin (2005) conducted a study that intentionally studied the effect of mail versus e-mail contacts. A study conducted by Schaefer and Dillman (1998) found e-mail to be effective as a means of initial contact for the e-mail component of their study, which utilized e-mail and mail to collect survey data on university faculty. They found that the “e-mail prenotice was much more effective in increasing response rate to an upcoming e-mail questionnaire than the regular mail prenotice” (p. 388). Schaefer and Dillman concluded that e-mail notifications are more appropriate than mail notifications for a population that uses e-mail often. Healey (2005) also noted the possibility that a mail invitation to complete a Web survey may not be as effective as an e-mail invitation because responding to a mail invitation to complete a Web survey involves a shift of activity, unlike responding to an e-mail. For a survey of college students, Crawford et al. (2002) used e-mail for the Web survey component and mail for the mail survey component. “University populations are perfect examples of where the lists, created and maintained by the university, have been developed to a point where the e-mail address may potentially be a more reliable means of contact than a U.S. Postal address” (Crawford et al. 2002, p. 2). They found that almost all college students checked school e-mail since the beginning of the study, and a high percentage checked their school e-mail daily. In addition, Crawford et al. found more returned mail than bounced e-mails, suggesting that e-mail addresses may be more accurate than mailing addresses. In the study conducted by Kypri et al. (2004), e-mail seemed to be more effective than

mail in terms of participation, but they did not study the impact of each contact method. They did, however, find that combining a prenotice letter and a prenotice e-mail yielded a 43.4 percent response during the first phase of the study, and additional peaks in response were obtained after each subsequent reminder letter and e-mail. In the study conducted by Morris et al. (2004), over 70 percent of responses were obtained as a result of the second e-mail sent to sample members. They also achieved modest response gains from the third and fourth e-mail messages sent. Morris et al. recommends using several response maximization methods, including e-mail, postal mail, and telephone follow-up.

DATA COLLECTION DESIGN

A multimode Web-based student interview was utilized for BPS:04/06 data collection. The three modes of data collection were Web-based self-administered surveys, Web-based CATI, and Web-based computer-assisted in-person interviewing (CAPI) for sample members who refused to participate or could not be located through telephone tracing. The survey instruments within these systems were parallel, so the same question wording, item order, and range/consistency checks could be applied regardless of mode.

Initial Tracing

Tracing activities for all students selected for the BPS:04/06 full-scale study were conducted prior to the start of data collection and before any mailouts to students and their families occurred. Batch searches were conducted using contact information available for each sample member and their parents. In December 2005, an initial mailing was sent to the parents of dependent sample members introducing the BPS:04/06 study and requesting parents' cooperation and assistance in locating the sample member. In January 2006, a mailing to students announced the upcoming data collection and asked sample members to update their address information.

Immediately prior to the March 20, 2006 start of data collection, a sealed postcard announcing the availability of the Web-based self-administered interview was sent to each sample member's current address. The mailing provided a unique study ID and password and informed sample members that by completing the interview by April 18, 2006, they would receive \$30. At the same time, a comparable mailing was sent via e-mail to those sample members for whom a working e-mail address was available (provided during the base-year interview by the student or the institution, or in response to the student notification mailing via the address update sheet or the student Web site). Additional e-mail prompts were sent to nonrespondents throughout the course of data collection to encourage their participation.

Early Response Phase

The collection of the data for BPS:04/06 was divided into three phases. The full-scale data collection began with an early response period of about 4 weeks (March 20, 2006 through April 17, 2006), during which sample members could complete a self-administered interview via the Internet. Sample members were offered a \$30 incentive to participate in the first 4 weeks.

A toll-free hotline to the study Help Desk was provided to assist those who had problems accessing the Web site or questions about the survey. If technical difficulties prevented a sample member from completing the interview, a Help Desk staff member, also trained to conduct telephone interviews, encouraged him or her to complete a telephone interview rather than attempt the Web interview.

Production Phase

At the end of the early response period, the production interviewing phase of data collection (outbound CATI) began for cases that did not respond during the early response phase. Telephone interviewers placed outgoing calls to sample members to encourage completion of the

telephone interview. Sample members were offered \$20 for their participation. An automated call-scheduler assigned cases to interviewers and allowed calls to be scheduled by case priority and time of day. If a sample member told an interviewer that he or she preferred to complete the self-administered interview, interviewers would set a call-back appointment for 2 weeks to follow up in the event that a self-administered interview had not yet been completed.

Nonresponse Phase

In the nonresponse phase of data collection (a continuation of the production phase), telephone interviewers trained on conversion techniques called nonrespondents to encourage their participation.* To help increase response, the incentive was increased to \$30. In addition, nonresponse cases that resided in one of 49 geographic clusters in 29 states were eligible to be assigned to trained field interviewers for CAPI interviewing. CAPI interviews could be conducted either in person or by telephone by local field interviewers.

METHOD FOR TRACKING MAILINGS, E-MAILINGS, AND RESPONSES

Mailings and E-mailings

The BPS:04/06 case control system (CCS), a collection of database objects and programs used for controlling, tracking, and reporting on the processes involved in the data collection effort, included tables in which programs recorded the date/time and status of each batch of paper and electronic mail communications that were sent. The system assigned a processing “stage” number to each activity, and maintained current and historical statuses of each stage.

* BPS:04/06 classified cases into three types of nonrespondents: those who initially refused the interview; those for whom intensive tracing yielded a good mailing address, but no telephone number; and those identified as “hard to reach.”

As paper mailings were returned as undeliverable or as forwarded by the post office, or e-mails were bounced, statuses of the individual addresses were updated accordingly. Programs also identified e-mail addresses that were of invalid format and marked them as “bad” before e-mailing was attempted.

Communication Identifiers

In keeping with current best security practices, the survey login passwords assigned to sample members were “strong,” consisting of a random eight-character combination of uppercase and lowercase letters, numeric digits, and special characters (with some of each type of character required). In order to track whether a survey response was due to a respondent having received a physical (paper) or an electronic communication, an extra (ninth) character was attached to the survey login password sent to the sample member. This character was referred to as the “password extension.”

The Web survey software’s login procedure code was modified to allow login to the survey when the first eight characters supplied matched the password assigned to that user, and to additionally capture the password extension, storing it in an access log table along with the time/date of the login.

Paper mail and e-mail notifications to sample members were customized with each member’s unique login ID and unique password (i.e., no mass e-mail messages were sent addressed to multiple recipients). In the initial paper mailing announcing the start of data collection, the lowercase letter “m” was appended to the passwords as extensions; for the initial electronic announcement mailing, the extension “e” was appended. The Help Desk application, used by telephone operators to help respondents who had called to get assistance with login and

other problems, was modified to append the extension “h” to the passwords that the Help Desk staff gave to respondents over the phone.

As the second (“reminder”) notifications were being prepared, it became evident that by varying the password extension each time, the project could easily associate responses not just with the mode of communication, but also with the actual instance of communication. The second e-mailing was done with the extension “a,” and the extension letter was incremented with each subsequent mailing, skipping “e” and h” as they had already been used. Paper mailing password extensions continued from “n” upward with each mailout.

E-mail announcements were sent to all e-mail addresses available for each sample member; address availability ranged from no addresses to seven different addresses for a single person.

Analysis Files

To prepare for analysis, the Web access log table was processed to extract the password extension associated with the login event resulting in the final response (since it was possible for a user to log into the Web site, not complete the survey, then return much later in response to a reminder communication and complete the interview). We also calculated the number of e-mail addresses associated with for each case, separately by address type and validity, and incorporated case completion status and sample member demographic data.

RESULTS

Early Response Phase

At the start of the data collection period, sample members were sent a folded and sealed postcard and a comparable e-mail message (sent to those sample members with viable e-mail addresses from the base-year interview or prenotification updates) indicating that the interview

link on the study Web site was available, and providing their user name and password to gain access to the interview. A thank you/reminder postcard was sent 7 days later thanking the respondents that had completed the interview and encouraging the others to complete the interview. In addition, two e-mails were sent during the early response phase reminding nonrespondents of the incentive (\$30) available for completing the interview by the end of the early completion date. All sample members were encouraged to complete a self-administered interview via the Web; however, a toll-free telephone number to the project Help Desk was provided for sample members who preferred to complete a telephone interview. By providing unique passwords during each contact, researchers could see the impact each contact had on the early completion phase of BPS:04/06 data collection.

Figure 1 shows the number of interviews completed each day, by the source of the complete. The first e-mail alone resulted in 3,153 completed interviews (15 percent of the total sample) through the first 15 days of data collection.[†] In addition, during this period, 1,800 sample members (8 percent) completed the self-administered interview using a password provided in the data collection announcement postcard, 114 sample members completed the interview using a password provided by the Help Desk, and 195 sample members opted to complete a telephone interview.

Within the first 2 weeks of the early response phase, self-administered interviews completed with passwords provided from the first e-mail and initial mailout had decreased dramatically. A second e-mail was sent on day 15 of the early completion period, and overall

[†] At the start of the early response phase of data collection, e-mail addresses were available for 85% of the sample.

The initial, sent on the first day of data collection, was sent to 38,255 e-mail addresses as the base-year study had provided multiple e-mail addresses for 53% of the sample.

production increased by approximately 61 percent from the prior 7 days, resulting in completed interviews from another 7 percent of the sample. A third e-mail sent about a week later continued to boost production as another 6 percent of the sample (1,313 interviews) completed during the final week of the early completion phase. Figure 2 shows the impact of each contact type on production during the early completion phase of BPS:04/06 data collection.

Production and Nonresponse Phases

After the early response period, telephone interviewers began making outgoing calls to the remaining sample (production phase). Telephone interviewers encouraged sample members to complete the CATI interview by informing them of the \$20 incentive check they would receive in appreciation for their participation.

In a data collection effort like the BPS:04/06, many sample members respond during the early response or production phases of data collection. However, other cases are initially reluctant to participate. Typically, these cases tend to drive up data collection costs because they require extensive tracing and multiple telephone calls and, in some cases, field data collection efforts for locating and interviewing. When sample members are reluctant to participate or when repeated attempts to contact sample members are unsuccessful, the nonresponse phase of data collection is initiated. In an effort to contain costs, these sample members were offered a \$30 incentive to encourage their participation. Cases can become refusals or nonresponses at any point during the data collection; therefore, for the purposes of this analysis, the production and nonresponse phases are combined.

As shown in Figure 3, the initial 5 weeks of this period was characterized by extensive CATI data collection efforts but very minimal self-administered Web data collection. Overall, production was solid, but almost all the cases were completed via CATI mode. Mail and e-mail

contacts with the sample were limited to the contacts initiated by the sample member via e-mail or CATI requested remailings of the study materials. In addition, as cases were moved to the nonresponse phase, they were sent a nonresponse/refusal conversion letter before the telephone interviewers contacted them again.

At the beginning of week 6, just after the Memorial Day weekend, the entire sample was sent an e-mail. As shown in Figure 4, this e-mail provided an immediate boost in participation, yielding 361 completed self-administered Web interviews. Four additional e-mails, sent over the course of the 3 remaining months of data collection, produced a declining but similar response, generating cumulatively 196, 120, 99, and 38 self-administered Web interviews, respectively.

Hardcopy mailings to the entire sample also proved to be effective in stimulating self-administered Web data collection. The four mailings that were sent to all pending cases resulted in 1,266 (6 percent of the total sample) interviews completed via self-administered Web data collection.[‡]

Figure 5 shows the contact methods that yielded interviews during production and nonresponse phases of data collection: as expected, CATI proved to be the dominant mode during these phases. Cumulatively, mail contacts resulted in 13 percent of the completed interviews and e-mail was responsible for another 9 percent. The additional mail and e-mail prompting efforts reduced the number of completed interviews needed from the more expensive CATI and CAPI modes of data collection and resulted in an overall cost savings to the project.

[‡] The four hardcopy mailouts resulted in 549, 301, 260, and 156 cumulative self-administered interviews, respectively.

DISCUSSION

In BPS:04/06 e-mail contacts provided an effective means to encourage sample members to complete the self-administered Web interview, particularly during the initial phase of data collection. Figure 6 shows that 38 percent of the total BPS:04/06 completed interviews were self-administered Web interviews from passwords attributed to an e-mail contact. Mail contacts produced self-administered interviews for an additional 22 percent while CATI accounted for 40 percent of the interviews.

Analysis of the results also shows that e-mail provides a more immediate response relative to mail. For each of the first three e-mail contacts, 90 percent of the corresponding completed interviews were completed within approximately 10 days of that prompt. A similar comparison of mail contacts show that mail took between 20 and 30 days to achieve 90 percent completion rate for each mailing.

While the success declined as the project transitioned to production/nonresponse data collection phases, e-mail still resulted in self-administered completed interviews with 1-2 percent of the remaining sample with each mailing. The success of mail contacts also declined during that same period, but less so than e-mail. Each of the four major mailings that occurred during the production/nonresponse phase resulted in self-administered completes with between 4 percent and 6 percent of the remaining sample. It is important to note that there was no evidence that either the multiple mail or e-mail contacts resulted in any significant increase in study refusals.

Having at least one e-mail address was particularly important in maximizing self-administered Web interview completion. Of those cases with at least one e-mail address, 50.6 percent completed the self-administered Web interview whereas only 11.5 percent of those cases

without an e-mail address completed the self-administered Web interview. Of the cases with multiple e-mail addresses in our records, 58 percent completed the self-administered Web interview. These results suggest a positive correlation between the number of available e-mail addresses and likelihood of completing the interview via self-administered Web method.

Having an e-mail address was associated with both a higher likelihood of completing the self-administered Web interview and an increased likelihood of completing the interview in any mode. Of those respondents with at least one e-mail address, 82 percent completed the interview (self-administered Web or interviewer-administered), whereas only 66 percent of cases without an e-mail address completed the interview. Of those cases with a school e-mail address and another e-mail address, 87 percent completed the interview.[§] These results suggest that e-mail is important in encouraging participation.

Further research and investigation are necessary to determine and control for potentially confounding factors influencing the greater success of e-mail prompts over mail prompts, and influencing the success of both the e-mail and mail prompts near the end of the study. For example, it is likely that the increased incentive offered during the nonresponse phase, coupled with the opportunity to complete a shorter interview, was partly responsible for increased participation during the last few weeks of the study. Intensive tracing, conducted mostly during the second half of the study, yielded additional and potentially more recent contact information, impacting both self-administered and interviewer-administered participation. Those who responded to the mail prompts may have been less likely have an e-mail address in our records, and may have been more likely to have e-mail returned as undeliverable. They may have also been different in other ways.

[§] School e-mail addresses were identified by the suffix (e-mail addresses ending with “.edu”).

In conclusion, projects utilizing a multimode data collection design that includes a self-administered Web interview may be able to increase self-administered Web data collection rates by alternating e-mail and mail contacts to sample members. For such projects, including a different password identifier in the various contacts is a simple way to identify whether a specific contact type (mail or e-mail) is most effective with a sample population. In addition, such identifiers can also help identify the frequency with which these contacts should be executed to help improve self-administered Web data collection.

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Figure 1. Production During Early Response Phase

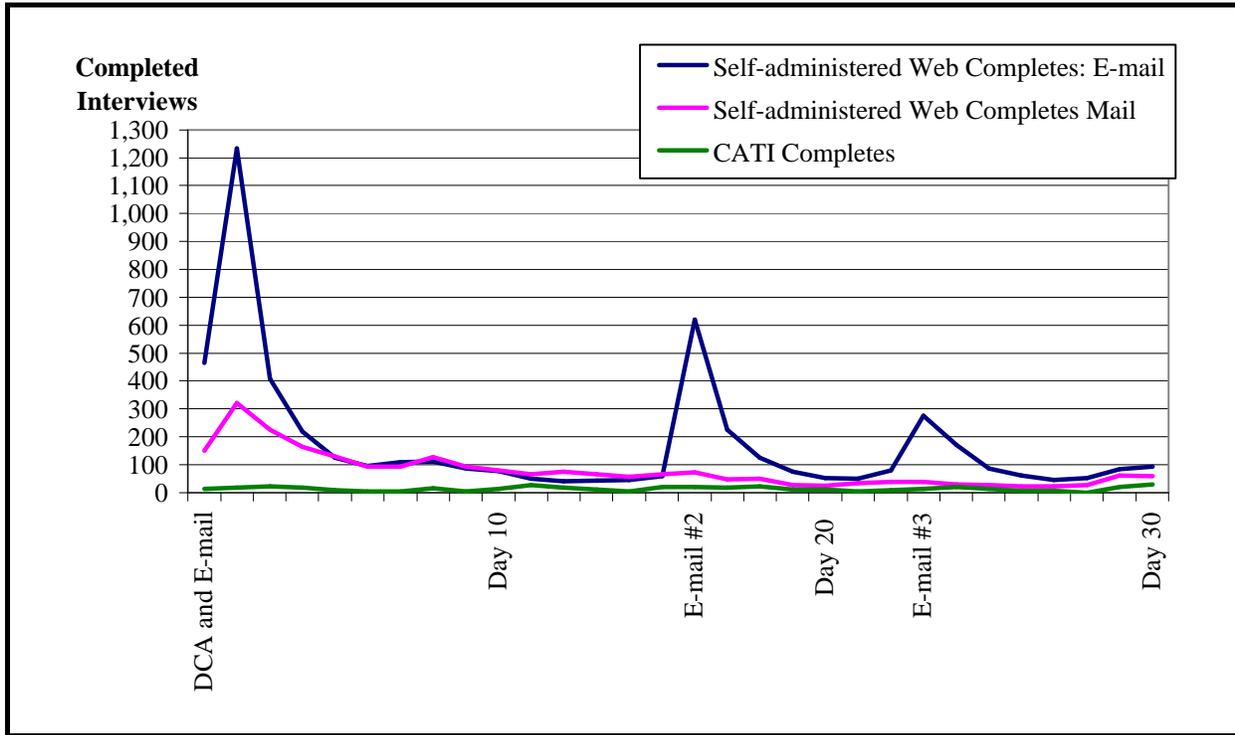


Figure 2. Early Response Interviews, by Password Source

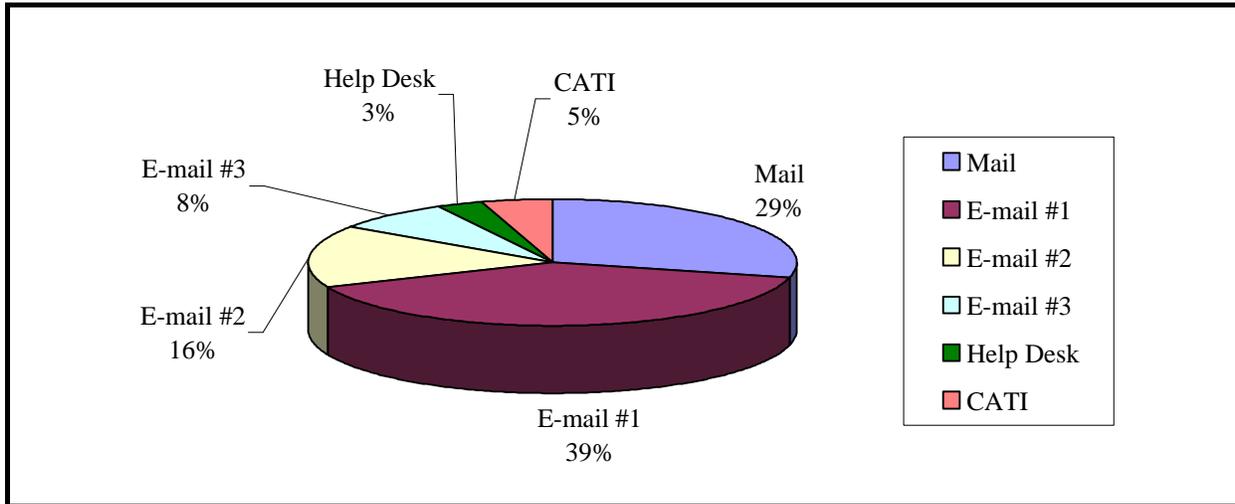


Figure 4. Production and Nonresponse Phase: Weeks 6+

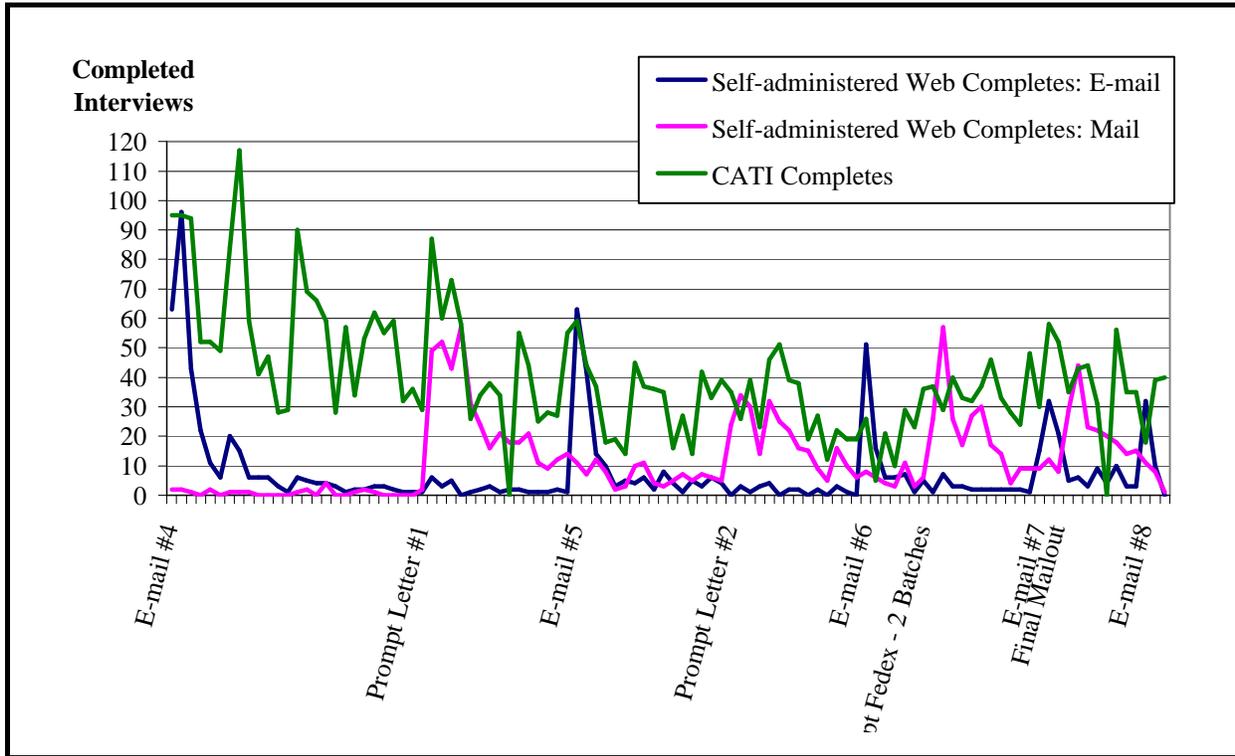


Figure 5. Production and Nonresponse Phase, Total Interviews by Source

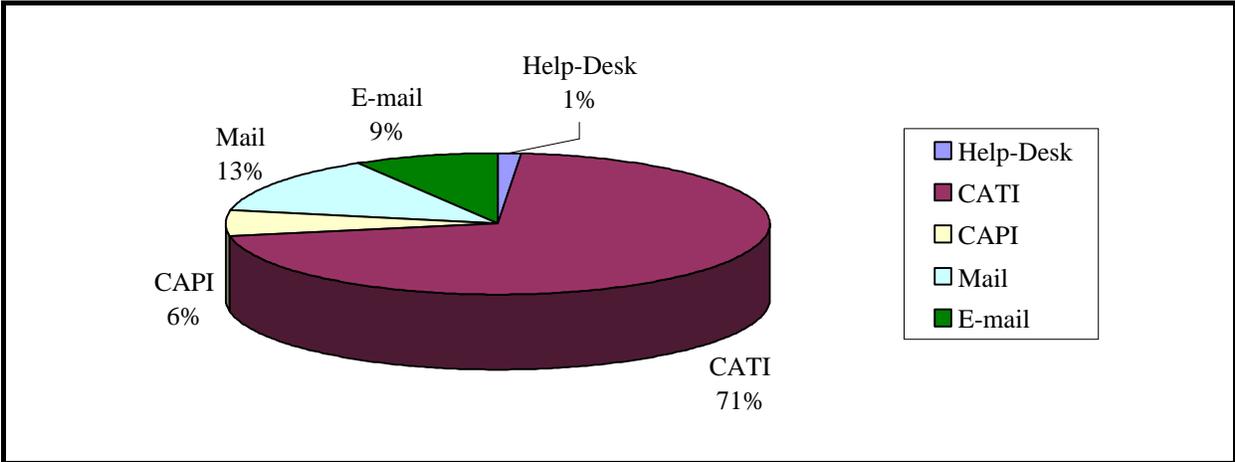


Figure 6. Completed Cases, by Data Collection Phase and Source

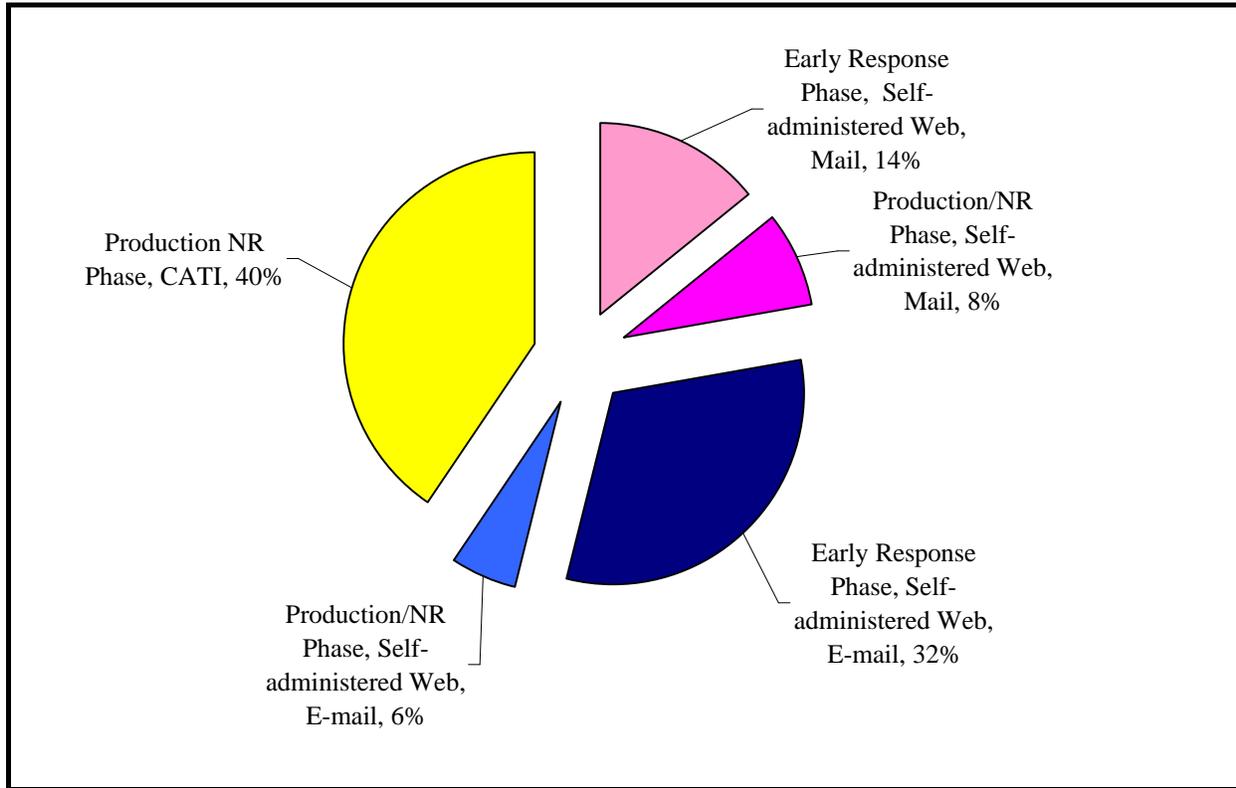


Figure 7. Phase 2 and 3: CATI and Self-administered Web Completions

