USE OF WEB-BASED DATA COLLECTION TO SUPPLEMENT AND IMPROVE MAIL SURVEY RESPONSE RATES

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Introduction

As telephone data collection response rates become more challenging to maintain, the field has seen increasing interest in ways to enhance the effectiveness of mail methodologies.

This presentation reports on RTI's experience using a web-based questionnaire as a response option in a multi-mode data collection design. The context was a federally funded, nationwide mail survey of workers in various occupations. Specifically, this presentation addresses the following:

1) Reasons for offering a web option
2) Advantages of a web questionnaire
3) Web experience during the pretest
4) Changes made to boost web usage, and
5) Subsequent web experience during full implementation.

During the 1999 pretest, sample participants who received a hard copy questionnaire were given the option to complete the same instrument via the Internet. A primary focus of the pretest was to benchmark the level of use respondents made of the web option and to determine the level of technical issues requiring the intervention of support staff. The full data collection program began in June 2001. In an effort to boost usage of the web questionnaire, specific changes were made to the instructional materials to better advertise the web option.

Preliminary data from the first seven months of full study implementation show that, as a result of these changes, and due to increased Internet usage, web response as a proportion of overall response quadrupled. Also during this period, the overall response rate increased by almost 10% over the pretest, which was due in part to the rise in use of the web option.

Multi-mode Design

The data collection was designed to be primarily a mail survey. One of five different questionnaire booklets was mailed to selected sample members. Each questionnaire booklet collected information on the characteristics of individual occupations. Sample members were randomly selected from sampled businesses and organizations nationwide that employed people in the occupations being studied. The study being essentially an establishment survey, the data collection design held many challenges to boost overall response rates from the selected employees once cooperation of the business establishment could be secured.

Along with each questionnaire booklet, a postage-paid return envelope and a cash incentive were provided. Each of the five questionnaires took an average of 30 minutes to complete (only one booklet was assigned to any one sample member). The instructional materials included with the questionnaire advised of an option the respondent had of completing the same questionnaire on-line via the project web site. No additional incentives or benefits were offered or implied for using the web-option. It was offered only as an option available if the respondent would prefer it as the mode of response over the paper and pencil instrument (PAPI).

Why Offer a Web Option?

We offered respondents the web questionnaire option for several reasons. First, the study design was subject to review and approval by the Office of Management and Budget (OMB). A section of the OMB request for clearance outline asks for a discussion of the "use of technology" in the study design. OMB is interested in any use of technology that can potentially minimize respondent burden, increase response rates, make any part of the data collection process more efficient, and/or minimize costs. Making use of the Internet to collect data as part of the total project design was something that was looked upon favorably by OMB.

As we would be dealing with a wide variety of occupations in this study, we deemed it likely that some respondents would perceive the web questionnaire as less burdensome and more efficient than completing and mailing the PAPI form. As such, the web option could potentially increase response rates by gaining the interest of those who might otherwise ignore the hard copy questionnaire.

Advantages of a Web Questionnaire

There are several advantages we found on our project to offering a web questionnaire. At the same time, however, we were also concerned about possibly introducing some mode effects that would later have to be evaluated and reconciled. On this latter point, we made a special effort to program the web version of the questionnaire to look as identical as possible to the PAPI presentation. Except for the fact that fewer questions could be presented on a screen than were presented on a page, the layout and appearance of individual questions were virtually identical (see Figure 1).

One distinct advantage the web questionnaire had over the hard copy form was that we could program skip logic and range checks to minimize errors in the data that would otherwise have to be resolved during editing. As questionnaires were completed, we were also able to capture accurate timing data that would be useful in subsequent renewal submissions to OMB. Information on the number of "sessions" respondents took to complete questionnaires was also captured with the web option.

Completed questionnaire data were immediately captured and secured with the on-line form. This saved time as well as postage costs (if business reply return envelopes are used to return completed forms). It also saved the labor costs due to hard copy data receipt activities, including opening the envelopes, eventing the receipt in the control system, and batching the forms for data processing. Additional costs associated with manually keying and re-keying each questionnaire booklet were also eliminated with each web response. Finally, the labor and space costs of storing and eventually disposing of hard copy forms were avoided with web questionnaires.

There are benefits inherent in a PAPI form that we wanted to maintain in the web instrument in order to minimize any possible mode effects. With a hard copy form, a respondent can work on the questionnaire, stop, then return later to the form, picking up where they left off. We made sure this ability to start and stop repeatedly without losing any provided data was programmed into the web system. The system was designed to allow a respondent to log into the questionnaire as many times as needed, each time capturing, retaining, and displaying to the user the previously provided responses. As with a PAPI form, a user could go back to previous questions, review responses and, if desired, change one or more of them.

Finally, with a PAPI form, a user always knows how much progress has been made towards completion of the form and how many questions remain. Since a web questionnaire often presents only one or two questions per screen, we incorporated the use of a progress meter at the top of every page. This kept the user informed of progress by showing the percentage of the total questions that he or she had completed. A recent study on whether progress meters are beneficial (Couper, Traugott, Lamias, 2001) could not confirm their overall benefit versus not having them. Download time associated with progress meters was a noted concern. This should eventually, however, become less of a problem as more users abandon dial up web access in favor of high speed cable and DSL.

Pretest Experience

From June 1999 to February 2000, a pretest of 50 occupations was conducted using the design described above. A number of experiments involving cash incentives and reply envelopes were designed into the pretest. Additionally, the study was designed to benchmark the use of a web-based questionnaire as a response option to sample members who received the PAPI form.

As seven different incentive experiments were used during the pretest, the overall response rate is not directly comparable to the subsequent full study. For reference purposes, however, the full study adopted the most efficient cash incentive option from the pretest of providing $10 cash up front with the questionnaire booklet. Response rates during the pretest for this option were calculated to be 54%.

Figure 1. Example of Hard Copy and Web Question Formats

HARD COPY VERSION

3. Writing	Communicating effectively in writing as appropriate for the the needs of the audience.

A. How <u>important</u> is WRITING to the performance of *your current job*?

Not Important*	Somewhat Important	Important	Very Important	Extremely Important
①	②	③	④	⑤

*If you marked Not Important, skip LEVEL below and go on to the next skill.

B. What <u>level</u> of WRITING is needed to perform *your current job*?

Take a telephone message ↓   Write a memo to staff outlining new directives ↓   Write a novel for publication ↓

① — ② — ③ — ④ — ⑤ — ⑥ — ⑦

Highest Level

WEB VERSION

During the pretest, a total of 1,662 questionnaires were completed. Of these, 3.7% (62) of the total responses came in via the web. Less than 4% of the total respondents chose to use the web response option in favor of completing the PAPI form. It is of interest to note that of the 50 occupations being studied just over half (27) had at least one response using the web option. Many of the respondents who used the web to respond were in occupations that one would expect, such as engineering and computer-related occupations. Other occupations that included web respondents were not as readily expected, such as bailiffs, dental assistants, locksmiths, and bus drivers.

One of the primary reasons we believe the web option was used so little during the pretest was a matter of advertising. The instructions informing respondents of the web option were "buried" halfway down the second page of a cover letter describing the study, its purpose, sponsor, data use, etc. As a result, we doubted many of those responding even knew of the web option as they glanced through the materials in only enough detail to know what was being asked of them, namely, to complete the questionnaire booklet they had in their hands.

Benchmarking the level of web option use during the pretest was only one factor being evaluated. We were also interested in finding out the frequency and types of technical problems that would arise requiring support staff to resolve. During the pretest, only two calls were made to the project's toll-free technical support hot-line. Both were problems involving the user's browsers that were readily resolved. There were no reported issues involved with navigating or completing the web-based instrument.

Changes Made to Boost Web Usage

In streamlining and simplifying our mailed materials we made one change that had the sole purpose of boosting the use of the web option among those responding to the survey. First, we eliminated from the cover letter the detailed instructions on accessing and completing the web questionnaire. To simply and effectively advertise the availability of the web option, we developed a 3 inch by 4 inch yellow Post-it ® note (see Figure 2) that was affixed to the cover of each hard copy questionnaire booklet. The

Figure 2. Post-it ® Note for Questionnaire Cover

detailed instructions regarding logging into the web site and how to complete the on-line version of the questionnaire were relegated to the web-site to be used by those choosing the web option. It was, therefore, not necessary to provide the details in the mailed questionnaire packet.

Full Study Experience

In June 2001 the full study implementation began. This time, 201 occupations were being studied, and only four of the five pretest questionnaires were used. Most of the 50 occupations from the pretest were included in the full study list of occupations.

Although data collection continues today, the results from the first seven months of operations (comparable to the length of the pretest data collection period) have shown substantial improvements in the use of the web response option. Based on the 11,503 responses received during this period (approximately 59% of the total questionnaires mailed out, up from 54% in the pretest), we find that 15.2% (1,750) were questionnaires completed on the web. This is a substantial increase over the 3.7% experienced two years earlier during the pretest.

Also interesting to note is the use of the web option across the occupations. Recall that during the pretest, over half of the occupations had at least one response using the web questionnaire. By comparison in the full study, the web option was utilized by at least one respondent from 96% (192 out of 201) of the occupations being studied.

We attribute an unquantifiable portion of these increases to the presence of the Post-it ® note advertising the availability of the web option on the front of the hard copy questionnaire booklet. This was a simple and inexpensive means of positively affecting the rate of web response.

As effective as the Post-it ® note was, we also recognize (but could not quantify) that the proportion of web responses to this survey would have likely increased between the pretest and the full study simply as a result of the growth of Internet usage over that time. The *UCLA Internet Report: Surveying the Digital Future* reports that in 2000, 66.9% of all Americans had access to the Internet. One year later, that figure rose to 72.3%. It is probable that both factors (better advertising of the response option and the overall increase nationally in web access and use) contributed to quadrupling the portion of total respondents who opted to respond electronically via the web in 2001.

With each passing year, more and more people will gain access to the Internet. More importantly for this project and others that seek to offer a web response option, with time and experience, users will become increasingly comfortable using the web to conduct secured transactions (e.g., purchasing, banking, and completing application forms and surveys).

Lastly, with time, more and more users will gain high speed cable or DSL access to the web, making more efficient use of their web transaction time. Higher speed access will also minimize download times of more visually stimulating questionnaire designs, which were concerns noted by Dillman et al. (1998) in their comparison of simple and more complex questionnaire designs on completion rates. Couper, Traugott, and Lamias (2001) also noted the concern over download times needed to support a progress meter and the effect on completion rates.

Regarding technical support issues, as in the pretest, these proved to be inconsequential during the full study implementation. Although the total number of web responses increased from 62 in the pretest to 1,750 in the full study, the total number of technical support calls increased from 2 in the pretest to 6 in the full study (at the time the snapshot of data was taken). Again, most of these were browser issues, username/password issues, or the user putting "www" in front of the URL by mistake. None of the issues related to questionnaire functionality.

Summary

Use of a web response option in support of a multi-mode data collection design can have positive effects on response rates as well as overall data collection costs. The results of a pretest compared to subsequent full study implementation in a mail survey showed a substantial increase in the use of the web response option over a two year period. Factors accounting for the increase are partially attributable to 1) better advertising of the web option to potential respondents and 2) the growth of Internet access, use, and efficiency over time.

The advantages of web questionnaires are many, both in terms of the potential positive effect on overall response rates and with regard to the mechanics of data collection and processing. Functionality of web instruments proved to be effective in this particular study. Technical access issues were few and simple.

References

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