

# Web of Caring: Development of Web Survey Best Practices

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## Abstract

Researchers should consider many factors when they design and conduct a Web survey. In particular, researcher should take care to maximize participation and to obtain the best-quality data possible. Using the results from a Web-only survey of 2005–2006 National Institutes of Health grant recipients, this paper describes the outcomes of two research design decisions, and also discusses other experiences, to inform the development of Web survey best practices. The first design decision was to enhance the social exchange between the research team and the sample member by including a toll-free number and an email address for both Mathematica Policy Research, Inc., and the Office of Research Integrity, the sponsoring agency. Our hypothesis was that providing this information would increase the sample member’s propensity to respond and to provide high-quality data. The other research design decision related to reducing the amount of missing data. We identified several critical questionnaire items; if an item was not answered, the respondent was given a hard (cannot continue if question is not answered) or a soft (can continue if question is not answered) prompt, and the question appeared again on the screen. In addition to assessing item nonresponse issues, we used paradata to track breakoffs.

**Key Words:** Web survey, paradata, survey methodology

## 1. Introduction

Web surveys have had a relatively short history, and the first published papers on the topic appeared in 1996, according to Couper and Miller (2008). Couper and Miller also note that “... the term ‘Web survey’ is too broad to give much useful information about how the study was carried out,” highlighting the wide variety of electronic data collection that comes under this umbrella. Survey research professionals are building a body of knowledge that can begin to make distinctions among the various types of Web surveys and to develop an understanding of what constitutes best practices and quality for the various types. The recent special edition of *Public Opinion Quarterly* (POQ), which updates information about Web surveys, underscores the importance of learning more about this mode of data collection. As Couper (2000) notes: “Only by fully understanding both the benefits and the drawbacks of this new method can we fully exploit the potential of Web surveys.”

The main objective of this paper is to inform the development of best practices for Web surveys. The introduction to the *POQ Special Issue: Web Survey Methods*, notes that “much more detail about the process [Web surveys] is needed in order for the reader to make judgments about the quality of the process itself or about the resulting data” (Couper and Miller 2009). Using our experience in the recent Office of Research

Integrity (ORI) Faculty Survey, we will address this objective. For this paper we will focus on several attributes of a Web survey that can be used to maximize the response rate and improve data quality.

## 2. Survey Objective and Methodology

ORI wanted to learn more about the roles of faculty and their institutions in educating graduate students in the responsible conduct of research. In particular, ORI wanted to improve communications to faculty and academic institutions about this role. However, articles published on the topic and anecdotal information acknowledged that there were multiple labels given to faculty who have this role—advisor, mentor, supervisor, role model, director, and others. In addition, although there was information about mentoring from the graduate student perspective, there was no empirical information from the faculty perspective. To the best of our knowledge, this was the first survey to address the language used to describe the faculty/graduate student experience, the activities that make up that experience, and the identification of responsibility for training graduate students in the responsible conduct of research. In addition, because a key goal of the survey was to find out how language is used, it was a challenge to craft questions that would minimize language choice bias.

### 2.1 Methodology Overview

**Sample.** The sample frame was a list of 30,366 National Institutes of Health (NIH) 2005 and 2006 grant recipients from which a sample of 10,000 was selected using two strata: (1) grant recipients associated with institutions that have medical schools and (2) those who were not associated with medical schools. Because some of these NIH grant recipients had multiple institutional affiliations listed in the sample frame, we developed criteria to allocate them into the two sample strata and developed a selection algorithm to assign grant recipients to a stratum. Overall, among the 10,000 selected using proportional allocation with equal probability sampling, 82 percent were in the medical school stratum and 18 percent in the nonmedical school stratum. To be eligible to participate in the survey, grant recipients had to have at least one student currently or within the last five years.<sup>1</sup> As we developed the sample design, we were not able to find any information about the proportion of NIH grant recipients who would meet this criterion. Based on information from a student survey, we estimated that about two-thirds of the grant recipients would meet the eligibility criterion. Among those who responded, this was about the proportion of those who were (64 percent) or were not (36 percent) eligible.

**Questionnaire Development.** The questionnaire development began by conducting a literature review to identify relevant higher education faculty surveys and by reviewing publications that focused on this topic, such as the National Academy of Sciences publication *Advisor, Teacher Role Model, Friend: On Being a Mentor to Students in Science and Engineering* and the Howard Hughes Medical Institute's *Training Scientists to Make the Right Moves: A Practical Guide to Developing Programs in Scientific Management*. We conducted cognitive interviews with nine NIH grant recipients. The

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<sup>1</sup>The two eligibility screening questions were Do you currently have primary responsibility for overseeing at least one doctoral student's research leading to his or her doctorate? IF NO: In the last five years, did you have primary responsibility for overseeing at least one doctoral student's research leading to his or her doctorate?

final Web questionnaire included the following sections. Table 1 has a complete overview of the number of questions in each section.

### Questionnaire Sections:

Eligibility Screener

- A. Faculty Roles
- B. Your Doctoral Students
- C. Student Outcomes
- D. Institutions, Departments, and Programs
- E. Professional Activity
- F. Faculty Responsibilities
- G. Background Information

As noted before, this comprehensive questionnaire was designed to learn as much as possible about a range of faculty/graduate student experiences. There were 6 open-ended items that requested a written response; 22 items that had other specify options; and 62 items that requested a numerical response such as number of students, percentage of time spent on various activities, annual amount of grant funding, age, and years as a faculty member at the current institution. When the questionnaire was programmed for the Web administration, it resulted in 53 screens, not including the eligibility screening questions.

**Data Collection Mode.** The ORI Faculty Survey provided an opportunity to conduct a study that was essentially “a true electronic survey with all contacts with respondents via email”<sup>2</sup> (Porter and Whitcomb 2003). We were able to conduct a true electronic survey because the sample frame of 2005 and 2006 NIH grant recipients had email addresses available for sample members; we had confidence the email addresses were valid at the time of the grant because email was the mode of communication with NIH.

**Web Programming.** The program used for developing a Web survey should offer the kind of flexibility that will facilitate a questionnaire design that maximizes the quality of the responses. For example, a program that can fill an answer given in response to a prior question into a new question reduces respondent burden and assures correct information is referenced. In addition, the program has to allow for interim reports and collect paradata to monitor the data collection. Careful attention must also be paid to security and confidentiality concerns. To address all of these needs, we used WebSurv, a Web survey package developed by Mathematica Policy Research, Inc. (MPR) to meet the multiple technical and methodological issues encountered when conducting a Web survey. (Appendix A provides a description of WebSurv.) After the questionnaire was programmed, extensive testing was done using various types of computers and possible respondent scenarios.

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<sup>2</sup> All contact was by email except for one mail contact from ORI tailored to a subset of 476 of those in the sample with the highest grant amounts and the lowest response rate. In addition, six sample members requested a paper questionnaire to use instead of the electronic Web version.

**Overview of Web Survey Process.** To ensure that there were no problems with the initial email invitation, we first sent it to a subset of 200 sample members.<sup>3</sup> Based on other Web survey experiences, we decided to have a hyperlink in the email, even though it involved more elaborate programming, so the sample member would automatically get to the questionnaire. Data collection was conducted between October 13, 2008, and March 16, 2009. However, no email reminders were sent from December 18, 2008, through January 8, 2009. The overall response rate was 53 percent without incentives. Table 2 has an overview of the full disposition of the 10,000 sample cases. Following the initial email invitation to participate in the survey, there were 11 follow-up email reminders. The paradata provided by the Web program enabled us to track responses. Figure 1 shows the response following each of these reminders. As the graph shows, we continued to have an average of several hundred responses each time we sent an email request even for the final reminder. Without guidance on the optimum number of email invitations to send, we used the actual response after each request to guide our decision to continue the email contacts.

**Profile of Responses.** Using the paradata, we found that close to half (45 percent) of the responders completed the questionnaire in 25 minutes or fewer. The range was from 4 minutes to 184,887 minutes (Table 3). As is common in tracking Web survey time of completion, the actual time has inaccuracies because the reported time is based the Web connection and is not limited to the time respondents are actually completing the questionnaire. Overall, 75 percent of respondents made a single visit to the Web site to complete the questionnaire (Table 4).

### 3. Decisions to Improve Survey Quality

Although there were multiple decisions made during the development of this Web survey, the focus will be on one that was implemented to maximize response and another that was designed to improve the quality of the data on particular questionnaire items.

**Maximize Participation.** Most surveys offer a toll-free number and/or an email contact to provide an opportunity for sample members to contact the survey contractor. For the ORI Faculty Survey we paid particular attention to these communications from sample members. Although we did offer a toll-free number, there was minimal telephone contact, so our focus is on our experience with email contacts. Our goal was to maximize response by enhancing the social exchange experience. As data collection continued, beyond the time used to prepare and send out each of the 11 email reminders, we spent an estimated average of about eight hours after each reminder reviewing and responding to the email messages received from sample members. In addition to these emails, we monitored emails that were returned as undeliverable and searched for updated contact information. When emails were blocked by firewalls and spam filters, we explored methods to have our emails delivered.

To find out if our attention to these email messages from sample members had positive outcomes, we monitored to find out how many members completed the questionnaire after we answered their email inquiry and what types of messages were

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<sup>3</sup> This approach was useful. After the email invitation was sent, there was an almost immediate response about a technical issue. Although it seemed to be an individual problem, we were able to resolve it quickly to prevent it from happening to others. If we had not provided an MPR email address, we would not have been able to get this kind of information.

most likely to result in a completed questionnaire. Overall, excluding the system messages for the emails not being delivered, we had 292 email messages from individuals that we classified into nine types described in Table 5. The largest category contained the 86 messages seeking information about survey eligibility; the next largest was 52 who questioned the legitimacy and credibility of the survey. Table 6 provides examples of the messages by type from sample members and MPR's response. As a result of our communication with these sample members, 81 percent of those we responded to completed the questionnaire. In addition to the success of increasing participation, these email messages also pointed out barriers both to survey participation and to responding to specific questions.<sup>4</sup>

**Improve Response Quality.** We decided that we would consider 10 questionnaire items to be critical for various reasons; these items included the eligibility screen, key information needed for analysis, and items that informed follow-up questions. For these 10 questions, the Web survey was programmed to follow up nonresponse to the item with either a hard (cannot continue if question is not answered) or a soft (can continue if question is not answered) prompt (Table 7). The hard prompt was programmed only for the eligibility screener. To learn about how these prompts, as well as other decisions about questionnaire design, influenced item nonresponse, we reviewed the paradata to find out where in the questionnaire we were most likely to have breakoffs (Peytchev 2009).

Overall, we had 652 breakoffs among the 53 questionnaire screens. Table 8 lists all the screens on which the number of breakoffs exceeded 20. Because the only hard prompt was for the eligibility screener, the paradata has information about the eight screens in the Web survey that had questions with soft prompts. Although there might be reasons for breakoffs other than just the soft prompts, the paradata show that among these eight screens with questions that had soft prompts, six had large numbers of breakoffs. In particular, screen 11 had 127 breakoffs, or 33 percent of all other breakoffs. Other notable areas of breakoffs related to questionnaire design were screen 10, which had an open-ended question (76 breakoffs), and screens with lists (such as screen 11, which not only had a soft prompt but also a list question with 19 items (127 breakoffs), and screen 44, a list with nine items (43 breakoffs).

#### 4. Summary and Observations

Similar to any other survey, Web surveys involve making decisions and judgments about tradeoffs that may or may not produce the intended results. This paper focused on several design options among many that we considered as we developed the questionnaire, programmed the Web survey, and developed guidelines for the data collection process. Here we review the consequences of some of these decisions and consider how they can inform the body of knowledge about Web surveys.

**Monitoring and Responding to Emails.** The information we got from the e-mail messages was useful. Not only did these messages provide ongoing information about barriers to responding to and completing certain questions, but responding to them resulted in a gain of 150 additional interviews. This information will inform our decisions

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<sup>4</sup> Based on some tracking information we had, ORI responded to 44 email messages. Among those inquiries, 13 related to eligibility and 11 to confirming the survey was legitimate. So far we have not determined how many of these were unique or were duplicates of those received by MPR.

on future surveys with respect to (1) the process we used to determine eligibility, (2) the information we provide about MPR and the sponsor of the survey, and (3) the questionnaire design.

**Eligibility.** Among the nine types of messages, we received the most (29 percent) about sample members' eligibility. Eligibility was determined by means of screening questions, and this required the sample member to access the questionnaire. We assumed that there would be a low cost burden to do this because the email invitation included a hyperlink for easy access. We had considered explaining the eligibility criterion as part of the invitation email, but decided not to do this for two reasons: (1) we were concerned that if we did not walk the respondents through the eligibility criteria, it would be too easy to opt out of the survey; and (2) we wanted to document the reasons for ineligibility. So although we had to respond to 86 inquiries related to eligibility, we had 1,922 sample members who accessed the Web questionnaire and were identified as being ineligible by completing the screening questions. Overall, this validated our decision not to screen within the email.

**Legitimacy.** The second-highest number of email messages involved inquiries about the legitimacy of the survey. In particular, sample members wanted more information about MPR and ORI. We had made a decision to keep the email message as streamlined as possible, expecting that a shorter message would be more likely to encourage sample members to read key information and to participate in the survey. Rather than have a lengthy email message, we provided detailed information about both organizations on a frequently asked questions (FAQ) document that was referenced at the top of the welcome page of the Web survey. Knowing when and how much information to provide to sample members is a challenge. Whereas too much information might be a barrier because of the effort and time it takes to read, too little might result in nonresponse. An FAQ can be a useful approach to meeting both objectives because those who want more information can take the next step and review the FAQ. However, because getting to the FAQ required the sample member to access the Web questionnaire, the value was reduced. This suggests a need for more research on the optimal amount of information to provide on a Web survey to encourage participation, particularly with respect to the survey sponsor and contractor.

**Questionnaire Design.** The paradata provided by Web surveys can help researchers identify questionnaire issues early in the data collection process. The useful information from paradata underscores the need to have a Web survey program with the capability to easily generate real-time reports. After the survey had begun, the email messages we received and the paradata both indicated a potential nonresponse problem for the first set of questions. Two examples of comments about the first questions, A1 to A3 follow:

“I have not completed the survey. I find the line of questions totally irrelevant as to the role of advisor? Mentor? It is not what we are called but what we do.”

“I have attempted to complete the questionnaire for your study. Unfortunately, I did not know that it would focus on such items as whether someone was called a Mentor or Advisor.”

Comments such as these flagged the first few questions as potential barriers to responding. However, because the main objective of the survey was to learn more about how faculty use and identify with these terms, the choices about how the questions were

crafted and where they were located in the questionnaire were limited. It is also important to consider such comments as part of the larger picture of breakoffs and survey completion. Although we received 251 breakoffs in questions A1 to A5 that were used to obtain information about terminology, 3,534 respondents did answer these questions. So although for this Web survey we were limited in the changes we could make to avoid item nonresponse and breakoffs, there is a lesson for other Web surveys to use paradata to watch breakoffs closely at the outset of the data collection process for an early warning about questionnaire problems that might be corrected.

Overall, the combination of qualitative information from the email messages and quantitative breakoff paradata gave us helpful, multidimensional information about respondent behavior and about Web survey questionnaire development.

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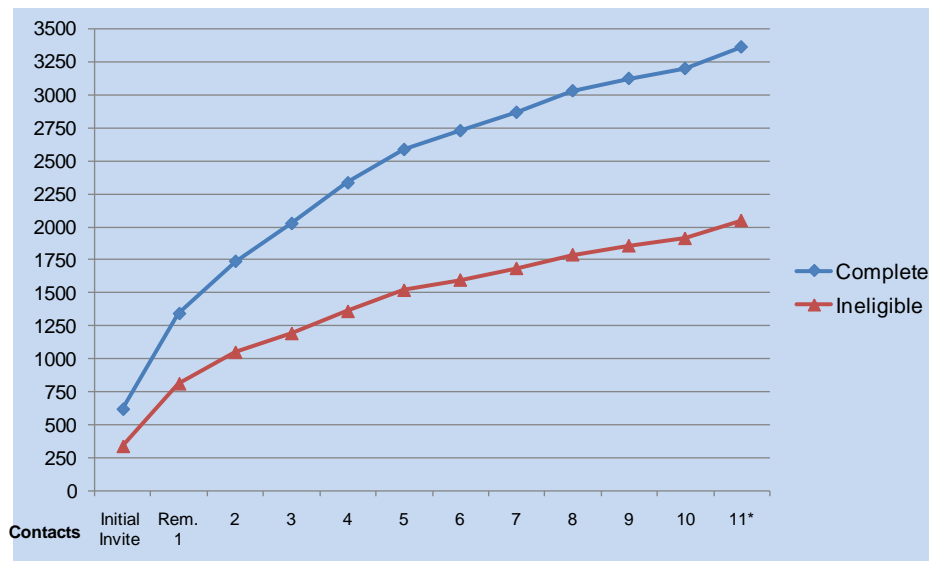
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**Table 1: Overview of Questionnaire**

Sections	Number of Questions	Number of Items
Eligibility Screening	3	
A. Faculty Roles	5	A1, A2 (4 items each) A5 (19 items)
B. Your Doctoral Students	7	B1/B1range B2/B2range B4 (4 items) B7 (17 items)
C. Student Outcomes	3	C1 (6 items) C3 (10 items)
D. Institutions, Departments, and Programs	17	D2 (9 items) D3 (3 items) D9 (4 items) D10 through D13 (6 items each—*if D10 = yes)
E. Professional Activity	8	E1 (3 items) E4 (6 items)
F. Faculty Responsibilities	5	F2 (9 items) F3 (9 items—same as F2) F4 (9 items—same as F2 and F3)
G. Background Information	13	G2 (3 items) G5 (5 items) G10 (6 items—race)

**Figure 1: Responses to Email Messages**

**Cumulative Number of Returns**



\* Mail and Email



Table 2: Final Sample Dispositions

Disposition	Number	Percentage
Complete	3,534	35.3
Ineligible	1,956	19.6
Deceased	15	<1
Refusal	73	<1
Refusal—partial (logged in; critical items missing)	27	<1
Other partials (logged in; critical items missing)	435	4.4
Unavailable during field period	20	<1
Sabbatical		
Maternity leave		
Medical leave		
Effort ended	3,940	39.4
Never logged in, logged in—no data, Undeliverables/SPAM		
Out of office		
Mailbox full		
Unknown		
Total	10,000	100

Table 3: Response Completion Times

Minutes to Complete the Questionnaire	Number	Cumulative Percentage
20 or fewer	1,043	29.5
21–25	566	45.4
26–35	639	63.6
36–60	496	77.7
More than 60	790	100

Table 4: Number of Logins for Completes

Number of Logins for 3,534 Completes	Number	Percentage
1	2,642	74.76
2	597	16.89
3	175	4.95
4	65	1.84
5	23	0.65
More than 5	55	0.91

**Table 5:** Outcomes of Response to Sample member Email Questions

Message	Number	Percentage Completed Post-Message
Eligibility	86	90.6
Legitimacy of survey	52	57.7
Technical problems	37	75.7
Technical for questions D11/D12	31	100
Partials	31	93.5
Time issue	24	83.3
Item-specific question	13	61.5
Sample issue	12	58.3
Request for paper copy	6	66.7
Total	292	80.50

Note: Total breakdown: 150 completes, 85 ineligible, 6 refusals, 51 effort ended.

**Table 6:** Sample Email Messages from Faculty and MPR Response

Message Type	Number	Sample Messages
Eligibility	86	<p>“I did not train any PhDs.”</p> <p>“Since I don’t train PhDs I don’t think I would be particularly useful for your survey”</p> <p><b>MPR RESPONSE:</b> Thank you for sending your email. For clarification, faculty members who have had primary responsibility in overseeing doctoral student (Ph.D. or MD/Ph.D.) research in the last 5 years are eligible to complete the web questionnaire. Have you trained any doctoral students at any institution in the last 5 years? If not, please let us know so we will make sure you do not receive any reminder emails.</p>
Legitimacy of survey	52	<p>“What is MPR/ORI’s relation to NIH? Please advise at your earliest convenience.”</p> <p>“What and where is the ‘Office of Research Integrity’?”</p> <p>“Please tell me what your organization is. Thank you.”</p> <p>“This was marked as spam by university.”</p> <p><b>MPR RESPONSE(S):</b></p> <p>The study is sponsored by the Office of Research Integrity (ORI) within the U.S. Department of Health and Human Services. ORI is interested in learning more about faculty and their institution’s roles in the successful development of Ph.D. and M.D./Ph.D. students. Doctoral students’ perceptions about their graduate experiences have been reported, and similar information is needed from the faculty perspective.</p> <p>ORI has contracted with Mathematica Policy Research, Inc. (MPR) to conduct the data collection on its behalf. For more than 40 years, MPR has provided research-based information to improve policy and programs in education, health, and employment.</p>

Message Type	Number	Sample Messages
		<p>The Office of Research Integrity (ORI) is located within the U.S. Dept. of Health and Human Services in Washington DC. It promotes integrity in biomedical and behavioral research supported by the U.S. Public Health Service at about 4,000 institutions worldwide. It also monitors institutional investigations of research misconduct and facilitates the responsible conduct of research through educational, preventive, and regulatory activities.</p> <p>This is not SPAM. This is a legitimate research endeavor request. As a fellow researcher, we appeal to you to participate in our study so that we have a representative sample. Prior research has focused on graduate students' perceptions of their graduate programs. We believe it will be useful to learn similar information from faculty.</p>
Technical problems	37	<p>“The link does not activate when I click on it.”</p> <p>“I filled out about 2/3 and then due to the time it was taking had to stop. I do not seem to be able to get it back which means redoing the overly long survey.”</p> <p><b>MPR RESPONSE(S):</b></p> <p>Thanks for your email. Please type in the following URL and then your username and password. You should then automatically come up to the point where you last left off in the web questionnaire.</p> <p>Thank you for sending your email and sharing your concerns. Actually, the web questionnaire was programmed to allow respondents to skip any item. However, some “critical” items have been assigned “validations” such that additional instructions will appear in red if the item was left blank. These items can also be bypassed simply by clicking “continue” and proceeding to the next screen.</p> <p>Thanks for your email. I just checked and it seems your case is working fine now. You should be able to pick up where you last left off. You would need to click the link in the prior email we sent, click continue, and then go right where you left off. If you are not automatically redirected to that point, it may be an internal problem on your institution's end OR it could be due to high traffic.</p> <p>Thank you for sending your email. The web program is up and running smoothly, so we're not sure what the trouble is you're experiencing. Please try again and if the problem persists, please do one or all of the following:</p> <ol style="list-style-type: none"> <li>1) type in the URL in your browser and manually enter your username and password</li> <li>2) wait to complete the questionnaire at a later time or day because there could be high traffic or problems due to long distance or</li> <li>3) Confer with your local IT department to make sure your cookies are enabled or that there are no other internal issues</li> </ol>

Message Type	Number	Sample Messages
Technical for questions D11/D12	31	<p>“So far, D11 and D12 do not permit responding to all items.”</p> <p>“When I got to D11, it was not possible to get any responses to enter. I logged off and on again and the same problem occurred.”</p> <p>“When I click on the circle near the answer, nothing happens.”</p> <p>“When I put a dot in the box nothing happens. I am unable to make a selection.”</p> <p>“D11 and D12 don’t work.”</p> <p><b>MPR RESPONSE(S):</b> Items in D11 and D12 are purposely deactivated if the same corresponding items in the previous screen (D10) were “no” or “dk.” So, you will find some items open for response while others are not open for response in D11 and D12. We apologize for any confusion.</p>
Partials	31	<p>“I think I did this thanks.”</p> <p>“I completed this a long time ago.”</p> <p><b>MPR RESPONSE(S):</b> According to our records, you have not completed the final section of the questionnaire (Section G, Demographics). It should only take a couple minutes to complete that important section. Please take some time as soon as you can to complete the questionnaire. To do so, please click the link in the prior email we sent you then click continue. You will be automatically directed to where you left off.</p>
Time issue	24	<p>“Your survey is far too long. When I perform survey research, I always consider the time required of the subjects/participants.”</p> <p>“How long does it take?”</p> <p>“I am too busy. I have many, many things to do and trouble keeping up. I don’t have time to fill out your study.”</p> <p>“How many questions are there? SC”</p> <p>“I try to find time for it this weekend. It is a long survey, some of the questions don’t seem to have a point, so I gave up for a while.”</p> <p><b>MPR RESPONSE(S):</b> Thanks for sending your email. For most faculty members, it has taken about 25 minutes to complete. However, it does not need to be completed in one sitting. You can “Quit for now” and continue it at a later date or time if you so choose.</p>
Item specific question	13	<p>“I started completing the questionnaire the quantitative nature of the questionnaire did not allow me to express my true feelings on the subject. Not sure how to resolve.”</p> <p>“I keep on getting e-mails about filling out a questionnaire. If this is the same one I’m thinking of, I started to fill it out but did not like the questions and really didn’t understand their purpose, so stopped midway because I did not feel like completing it. If I’m missing something here, feel free to call.”</p> <p>“I have not completed the survey. I find the line of questions totally irrelevant as to the role of advisor? Mentor? It is not what we are called</p>

Message Type	Number	Sample Messages
		<p>but what we do. I will be happy to help-but do something that is meaningful.”</p> <p>“...I feel that there are important items that could be addressed, but trying to sort our distinctions between Mentor and Advisor does not seem worth the time I have spent, or might need to spend. I need my time for mentoring, research, and teaching! Thank you for understanding my frustration with such a questionnaire.”</p> <p>“I will complete the survey but was not enamored with coping with the distinction between advisor and mentor. I have been involved in graduate education for 26 years and use, along with my colleagues, those terms interchangeably, although I usually use mentor for graduate students and advisor for postdoctoral fellows.”</p> <p>“I am responding to the survey you sent but am having a hard time answering many of the questions because we only refer to graduate advisors as such and the term ‘mentor’ has no formal meaning.”</p> <p>“Are you asking about direct costs or total costs in Question E5?”</p> <p>“I am attempting to fill out the survey. As I work with many doctoral students, I do not have the time to go back over the years and look up exact numbers of students who did each thing (e.g. published articles). I can estimate fairly closely, but I don’t have time to be precise. If you need exact numbers I will have to stop the survey for now until I get more time. Please let me know how to proceed.”</p> <p><b>MPR RESPONSE(S):</b></p> <p>Thank you for sending this email. The overall goal of this research is to learn about your role and your institution’s role in preparing researchers. The Office of Research Integrity communicates regularly with faculty about the responsible conduct of research and has found that there is a lot of confusion about the use of the words that identify faculty who have this role. The survey information will assist in the identification of words to minimize confusion and to guide communication messages. Also, while there is research that describes students’ perceptions of their graduate program experiences, this research will be useful to learn similar information from faculty.</p> <p>Thanks for sending your email. Please estimate to the best of your knowledge without reviewing any of your records. The overall time we estimated it would take to complete the questionnaire is based on general knowledge estimates with no need to review student records.</p> <p>*More than 13 faculty members emailed concern re advisor/mentor questions, but did so in an adamant refusal context. As such, the case was final stasured without any email reply.</p>

Message Type	Number	Sample Messages
Sample issue	12	<p>“The question ‘did you receive a grant from the NIH in 2005 or 2006.’ Does it mean did I receive funding from the NIH in those years, or did I receive a new grant? I got a grant funded in 2003, which was for 4 years, so it ended in 2007... So yes I did receive funding from the NIH in 2005 or 6, but no I did not receive a NEW grant in 2005 or 6. How should I answer this?”</p> <p><b>MPR RESPONSE(S):</b> Thank you for sending your email. You should answer this question, “Yes” you did receive funding in 2005-2006 even though it was not necessarily a new grant.</p>
Request for paper copy	6	<p>“If you send a hard copy, XXX will fill it out “Thank you. I will be happy to do this if you email me the questionnaire.”</p>
Total	292	

**Table 7: Critical Item Prompts**

Question Number and Topic	Question Type	Type of Prompt
<p><b>Screener</b> S1/S2 Identification of eligibility based on currently working with a doctoral student (S1) or having had a doctoral student in the last five years (S2)</p>	Close-ended	<p><b>Hard prompt*</b> Please provide a response to S1/S2 and then click continue. If you have any questions, please call 1-866-923-8154 or email <a href="mailto:facultysurvey@mathematica-mpr.com">facultysurvey@mathematica-mpr.com</a>.</p>
<p><b>Section A (A1/A2/A3)A5)</b> Identification of “name” faculty are called who work with doctoral students and review of 19 activities to attribute to advisor/mentor/other/both (A5)</p>	Close-ended	<p><b>Soft prompt**</b> Please provide a response for each item in (A1/A2). Please provide a response for A3. Please provide a response for each item in A5.</p>
<p><b>Section B</b> Number of students in past five years (B1) Number of students currently have (B2)</p>	Open-ended numeric response	<p><b>Two soft prompts as needed</b> First: You previously indicated you had primary responsibility for doctoral students in the last five years. Please provide your best estimate.  Second: You have been unable to provide an estimate. Which of the following categories best fits how many doctoral students you have had primary responsibility for in the last 5 years? Close-ended ranges are provided: 0, 1–3, 4–6, 7–10, more than 10.</p>

Question Number and Topic	Question Type	Type of Prompt
<b>Section F</b> Total number of hours in typical seven-day week spent on activities related to position at their institution (F1) Percentage of hours in typical seven-day week spent on each of nine activities (F2)	Open-ended numeric response F1 and F2 are on the same screen	<b>Two soft prompts as needed</b> First: Please provide a response to F1.  Second: The total in F2 does not equal 100 percent. All of the activities at this institution need to total to 100 percent.

\*Hard prompt: Cannot continue if question is not answered.

\*\*Soft prompt: Can continue if question is not answered.

**Table 8:** Questionnaire Breakoffs (Total of 53 screens; List of screens where 20 or more sample members break off)

Web Screen Number	Question Number	Question Type	Number of Breakoffs
9	A1, A2, and A3	Close ended	48
10	A4	Open ended	76
11	A5	Close ended—19 item list	127
16	B3 and B4	Close ended	22
19	B7	Close ended—17 item list	20
23	D2	Close ended—9 item list	37
32	D11 and D12	Close ended—6 item list	28
37	E1 and E2	Close ended	36
44	F1 and F2	Close ended—9 item list	43
45	F3	Close ended—9 item list	32
46	F4	Close ended—9 item list	20

## Appendix A

WebSurv is an in-house Web survey package developed by Mathematica Policy Research, Inc. (MPR). WebSurv provides greater flexibility than can be obtained with a commercial off-the-shelf (COTS) solution but avoids the development costs incurred with a totally customized solution that starts from scratch. WebSurv already supports a wide variety of question types that are easily authored in a first draft by nontechnical personnel. In addition, all questions—plus their assigned question type, response categories, and associated edits—are stored in a database that can be updated by nontechnical personnel. Similarly, responses are stored in an open-architecture database, which makes basic reporting easy and allows for quick download into more sophisticated analytical packages (such as SAS and SPSS) when the power of those statistical packages is required. Using in-house software such as WebSurv gives us the flexibility to meet the projects' requirements.