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AUTHOR Furlong, Deborah K.
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ABSTRACT

Institutional research has long relied on surveys to learn about student experiences. This study describes and evaluates two methods of using electronic mail to gather information from students about their experiences. Data were based on two case studies conducted during spring 1996 and fall 1997 at a 5,000-student state university. The report discusses some of the potential benefits of using e-mail to conduct survey research: faster response rates, the lack of intermediaries increases the chances that respondents will receive the survey promptly, asynchronous communication allows users to think about answers, and the medium itself may encourage users to respond more candidly. E-mail distribution lists are used to distribute questions and collect responses. Hypertext markup language (HTML) forms can be posted to an Internet web site to conduct survey research. While data from electronic surveys may not be as representative as that from a mail survey, the former is more likely to save money and time. Sample HTML form commands, a HTML form file, input types and subcommands, and HTML code used for a first-year survey are included. (Contains 10 references.) (CH)

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Between Anecdote and Science:

Using E-mail to Learn about Student Experiences

Deborah K. Furlong

Office of Institutional Research

University of Wisconsin-Green Bay

2420 Nicolet Drive, CL-823

Green Bay, Wisconsin 54311-7001

(414)465-2374

furlongd@gbms01.uwgb.edu

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This paper was presented at the Thirty-Seventh Annual Forum of the Association for Institutional Research held in Orlando, Florida, May 18-21, 1997. This paper was reviewed by the AIR Forum Publications Committee and was judged to be of high quality and of interest to others concerned with the research of higher education. It has therefore been selected to be included in the ERIC Collection of Forum Papers.

Jean Endo
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Abstract

University administrators rely on institutional research to provide information to guide their decisions. In times of rapid change, decision-makers often need new kinds of information, and they need it quickly. Institutional research has long relied on survey research to learn about student experiences. This paper describes and evaluates two methods of using electronic mail to gather information from students about their experiences. The conclusions draw heavily from case studies in electronic surveying conducted during Spring 1996 and Fall 1997 at a 5,000-student public comprehensive university. The study provides concrete examples of putting new communications technologies to work for institutional research and exposes their strengths and weaknesses relative to traditional pen-and-paper mail surveys.

Between Anecdote and Science: Using E-mail to Learn about Student Experiences

University administrators rely on institutional research to provide information to guide their decisions, and institutional research has long relied on survey research to learn about student experiences. Universities administer surveys to learn why students come, why they stay, and what they take with them when they go. Survey instruments range in sophistication from a few open-ended questions to long questionnaires answered on computer-scannable forms. In most situations, a well-designed survey will take several months to develop, administer, code and analyze. Surveys conceived of this spring will most usually not affect programs or policies until a year or more in the future.

In times of rapid change, decision-makers often need new kinds of information, and they need answers quickly. Surveys need content flexibility and quick turn-around time from problem identification to program re-design. In this information age, institutional research can gain flexibility and time-savings by moving some survey functions onto the computer. This paper describes and evaluates two methods of using electronic mail to gather information from students about their experiences. The conclusions draw heavily from case studies in electronic surveying conducted during Spring 1996 and Fall 1997 at a 5,000-student, public, comprehensive university. The study provides concrete examples of putting new communications technologies to work for institutional research, and exposes their strengths and weaknesses.

The first section explains some of the potential benefits of using e-mail to conduct survey research, with references to relevant literature on the topic. The second section describes how to use an e-mail distribution list to distribute questions and collect responses. The third section describes how to use a hyper-text mark-up language (HTML) form posted to an internet web site to conduct survey research. The conclusion evaluates the strengths and weaknesses of these two methods relative to each other and relative to traditional pen-and-paper surveys.

Why Consider Moving Surveys "On Line"?

Many, especially larger, offices of institutional research have developed well-oiled survey machines. We know how to move a new instrument quickly through the review board, we know how long it's going to take the printer to make the copies, and we know our administrative assistants can fold and stuff envelopes in their sleep. Why bother to think about changing? Technologies, respondents and demands change, and so should we.

Technological change has opened up a new way for researchers to reach respondents. Of course, each technology has strengths and weaknesses. Phone surveys are better for some topics and survey designs (for example

if there is a lot of branching), but a socially sensitive topic might generate more truthful responses through a fully anonymous mail survey. When is the time right to move a design on-line? In a literature review of electronic mail survey research, Liz Thach (1995) identifies at least four characteristics of the method that seem especially appealing:

> (T)he speed of the message transmission could result in faster response rates; asynchronous communications allow the users time to think about their answers; lack of intermediaries will increase the chance of the respondents receiving the survey immediately...; and the ephemeral quality of messages may encourage the user to respond in a more candid fashion... (p. 27-28).

Some research has shown that respondents react differently to electronic mail surveys than traditional methods. Sproull (1986) found that electronic mail surveys had response rates 20% higher than paper surveys, but lower than interviews or phone surveys. Kiesler and Sproull (1986) found that electronic mail survey respondents completed more items and made fewer mistakes than respondents completing a similar paper instrument. Several researchers have found that respondents answer with more socially undesirable responses when using a computer than when completing paper questionnaires or participating in interviews (Kiesler and Sproull, 1986; Sproull, 1986; Synodinos and Brennan, 1988; Walsh et. al., 1992). However, others have found that "computers yield similar responses to those obtained using traditional paper instruments" (Rosenfeld, et. al., 1993).

A sample's reaction to computerized instruments most certainly relates to characteristics of that sample. For example, research has found that respondents with high computer anxiety have lower response rates to computerized surveys than to traditional methods. A survey of students who wait until their senior year to fulfill a computer skill requirement might best be distributed through the mail! On the other side of the coin, young people who have grown up with computers often type much faster than they write (and, certainly, more legibly!). They may provide more complete answers to open-ended items, or will at least perform the survey tasks more quickly.

Higher education may be uniquely positioned to develop electronic mail surveying because many of our student populations do not face the kinds of access barriers to computers that other organizations must confront. At most institutions, students, faculty and staff get free access to electronic mail; computer centers often offer free or inexpensive training sessions to novices; many schools offer computer-based writing courses; faculty are increasingly asking students to communication with them and with each other through electronic mail. Indeed, some may argue that students who graduate today and have not learned to rely on electronic mail may not have been properly prepared for the post-college world they now confront!

Changes in the nature of demands placed on institutional research provide a final set of reasons why electronic mail surveying may make sense. Many aspects of our organizations increasingly turn to modern "total quality" management techniques as guides to improved performance. These modern techniques require collecting information and making decisions on the basis of it, and relying less on intuition, subjective assessments and anecdotes. Institutions are asking new kinds of questions about their services and achievements, and want to make decisions based on evidence, not hunch. An important dimension to the demands placed on institutional research relates to cost. Decision-makers want institutional research to collect new policy-guiding information within the context of current (and often shrinking) budgets.

Surveying through electronic mail can save time and money when compared to traditional methods. An electronic mail survey requires no paper, no envelopes, no printing, and no postage. Time spent printing or copying the instrument, folding and stuffing envelopes, and sorting bulk mailings into proper order disappears. Mail transit time for surveys to reach their destinations and return back to the researcher's hands falls from days and even weeks to seconds. Steinfield (1990) gives an example of time-savings from a survey done at a corporation:

> They broadcast a message throughout the company asking for advice.... The message included a description of the options, and what they saw as the strengths and weaknesses of each... This message was sent in the morning, and by late afternoon they had received several hundred replies. The group then tallied up the replies, and sent a message back to everyone in the same afternoon.... Without electronic mail, this same activity simply could not have occurred without great cost and effort, and yet in this instance was completed all in the same day (p. 288).

Another difference relates to the researcher's control over the eventual sample size. Most designs for mail and phone surveys specify a limited number of attempted contacts with potential respondents. For example, a potential mail survey respondent might get a first wave, a postcard reminder and a second wave; a phone survey protocol might specify making five attempts to reach a respondent. Researchers often find it difficult to alter the design or protocol in the middle of the administration based on initial results. In contrast, an electronic mail process gives the researcher more opportunities to alter the process based on initial responses in order to achieve an optimal sample size. For example, if an organization wants to base its analysis on 500 responses, the researcher can randomly select 1,000 individuals to participate. If that group fails to provide the required number of responses, additional individuals can be surveyed. Of course, this will not work well for time-sensitive issues, and the researcher must compare different samples for homogeneity. On the other hand, if 500 or more of the original group

responds, the research can drop plans for a second wave. (A planned second wave of a mail survey would almost always be carried out because duplicating, paper and envelope costs have already been sunk into the project from the outset.) The researcher can even alter the instrument between waves, if needed, to correct errors not found through pilot testing.

Finally, electronic mail surveys can save time and improve accuracy at the data entry stage. Essentially, the respondents enter the data directly into the form needed for analysis. The researcher simply moves the responses from in electronic mail folder into the data base. (In some systems, a computer programmer can help eliminate even that step.) Time and accuracy issues are especially prevalent with open-ended questions. In traditional methods, somebody must decipher and type out the responses to open-ended questions before the researcher can begin analyzing their content. With electronic mail surveys, virtually all of the time formerly spent doing date entry becomes time available for analysis.

Of course, electronic surveys can not and should not fully replace surveys all the time. After discussing two different methods of conducting electronic mail surveys, this paper will conclude with some practical advice about when these newer methods should be used and when they should be avoided.

Electronic Mail Surveying with Distribution Lists

One way to conduct an electronic mail survey requires setting up a distribution list containing all members of the target population or sample. The researcher then sends the survey questions as an electronic mail message to all potential respondents. The message instructs them to select the "reply" option, type their response, and select the "send" option. When preparing to conduct an electronic mail survey this way, the researcher should go through the following steps. First, carefully word the instrument. The message respondents get must start with a simple description of the survey's purpose, information about confidentiality, and a time limit on responding. The message must contain extremely clear, installation-specific instructions. For example, if the electronic mail software used by most students uses the word "Transmit" as the command for sending the message, the instructions should use that language as well.

A distribution list technique is especially well suited for asking a few, carefully-worded, open-ended questions. This technique does not work well for items that have a fixed response set because the researcher has no control over where the respondent will place the answer. That is, answers can come in left justified, right justified, centered, single spaced or double spaced; some respondents will place all their answers after the questions, while

others will intersperse their answers with the questions. This variability detracts little from the ease of analyzing open-ended items, but can make analyzing closed items quite tedious.

A second thing to do when preparing a distribution list survey is to decide what other information you need to know about respondents besides their answers to the questions. Ideally, the researcher should prepare a file that matches students' electronic mail addresses with the tracking number that identifies students in the institution's data base. This will enable the researcher to merge responses with relevant demographic and academic records, and eliminates the need to include questions like gender, ethnicity, class standing or major, for example.

Third, the researcher needs to prepare the distribution list and the distribution protocol. In general, this will require working closely with personnel in the computer center to identify the most efficient way to send a large group of people the same message simultaneously. Of course, the computer center is also the logical first place to contact to learn students' electronic mail addresses. The process of constructing the distribution list will vary depending on the hardware and software in use at each institution. Many researchers will learn that the computer center actively maintains an "all student" distribution list.

In order for students to respond by selecting the reply option, the initial message needs to be mailed from the electronic mail account where the researcher wants to collect the responses. The researcher should consider establishing a special account for the survey in order to keep survey responses separate from other in-coming electronic mail messages. The protocol should also include plans about conducting follow-ups. Ideally, the researcher should learn how to remove people from the distribution list once they have responded so they will not receive a second wave. The researcher needs to decide how long to wait before mailing out the second wave and any subsequent waves. The computer center may be able to provide a frequency distribution of how many days have passed since registered users last signed on, which indicates approximately how often people might be reading their electronic mail. For example, if the computer center indicates that 80% of the people signed on yesterday and 10% last signed on two days ago, the researcher could feel comfortable mailing follow-up waves approximately a week apart. On the other hand, if the user statistics indicate that most users only sign on approximately once a week, the researcher may want to wait two weeks before sending the follow-up wave.

Once responses start coming in, the researcher needs to know what to do with them. It might be ideal to set aside some time each day during the survey process to move the in-coming responses out of the electronic mail folder and into a more permanent file. For some very simple questions (i.e. "Should our mascot be the Indians or the Icebreakers?"), the researcher can read and code the response and then delete it. When a response is processed,

that respondent's address should be removed from the distribution list. It may be useful to format each respondent's response into a single paragraph, with the identification number as the first element of the paragraph so that the responses can be sorted and more easily merged with other relevant data. As with any open-ended survey question, the researcher needs to prepare to do a lot of content analysis.

A Case Study of the Distribution List Method: The "Feedback Project"

During Spring 1996, the Office of Institutional Research at the University of Wisconsin - Green Bay conducted a ten-week paperless survey - the "Feedback Project" - to collect information from students about a variety of educational issues. A distribution list of approximately 2,400 full-time undergraduates was developed. The first week, all members on the list received a message that described the purpose of the project and asked them to reply with the word "Yes" if they wanted to participate, and to simply delete the message if they did not want to participate. A new distribution list of approximately 450 willing participants was prepared. Then, each Monday for the next eleven weeks those students received a single open-ended question, along with instructions when and how to reply and how to be removed from the project. The subject field of the electronic mail message was used to indicated the question number, which facilitated keeping responses separate since students were typically given two weeks to respond to each item. Approximately two weeks after posting each item, all responses were gathered into a single word processing file. Responses were coded into categories relevant to that question. Short, one or two-page summaries were written and posted to the institutional research office's web site and distributed to campus leaders. At the end of the project, participants received a "thank you" message that indicated how they could access the summaries.

Table 1 contains more detailed information about the questions asked in the Feedback Project. Topics touched upon included pedagogy (weeks 1, 5 and 6), institutional mission (weeks 2 and 8), enrollment management (weeks 3, 7, 9 and 11), student life (week 4), and outcomes (week 10). Some questions were timed to coincide with specific events. For example, students received the question about time management during the midterm exam period, and they received the question about course availability the week advanced registration began. Each week, approximately one-third of the project participants responded to the question. The average length of the responses ranged from 69 to 103 words. Because the Feedback Project was experimental and exploratory, responses were stored anonymously and no second waves were conducted. The content of each electronic mail response was copied to a word processing file, and the address information was purged. This prevented merging the responses with information from the student data base.

Table 1. Feedback Project Summary

Week	Topic	Question	Respondents	Mean Words
1	Pedagogy	What are the best courses you've ever taken at UW-Green Bay? What, specifically, was so outstanding about them?	182	96
2	Mission	What does "interdisciplinary" mean to you? How has it affected your studies at UW-Green Bay?	158	84
3	Enrollment Management	Do you know any students who attended college in the fall and aren't in school now? What are they doing? Do you think they made the right choice?	105	95
4	Student Life	How many hours a week do you work or spend caring for family members? How do these work and family commitments affect your education?	159	80
5	Pedagogy	What do you think about UW-Green Bay's General Education requirements? Has taking General Education courses been a positive experience for you? Explain.	159	90
6	Pedagogy	What courses and/or assignments at UW-Green Bay have had the most positive impact on your ability to write?	120	70
7	Enrollment Management	Many students used to graduate in four years, but now most take longer. How long will it take you, and why?	184	81
8	Mission	What do you think about the Senior Seminar requirement? Is it a good requirement, or not? Explain.	139	69
9	Enrollment Management	Have you ever gone to register for a course and found out it wasn't offered or was already closed? How did you handle the situation? How has course availability at UW-Green Bay affected you?	139	103
10	Outcomes	What do you plan to do after graduating from UW-Green Bay? [Seniors only]	29	Not available
11	Enrollment Management	Do you plan to attend UW-Green Bay next fall? Why, or why not? [Non-seniors only]	126	Not available

Electronic Mail Surveying with HTML Forms

In the past few years, thousands of colleges and universities have begun posting information about their institutions to the World Wide Web. Although organizations most commonly use the World Wide Web to provide information to various constituents, it is also possible to use the Web to collect information. Web forms let a reader send some information back to a Web server for some particular action. In the following discussion, the method described collects information from a reader and asks the server to send the formatted results to the researcher's electronic mail account. Additional programming could ask the server to send the results directly into a data file.

Web forms consist of special commands embedded into a hypertext markup language (HTML) file (NCSA, 1996). The commands in table 2 initiate an HTML document, specify a fill-out form, direct the form to send the results to an electronic mail account, structure a single question, and direct the respondent to package up the results and post them to the server. The actual HTML file would look something like figure 1, and would appear on a browser screen as shown in figure 2.

Table 2. Simple HTML Form Commands

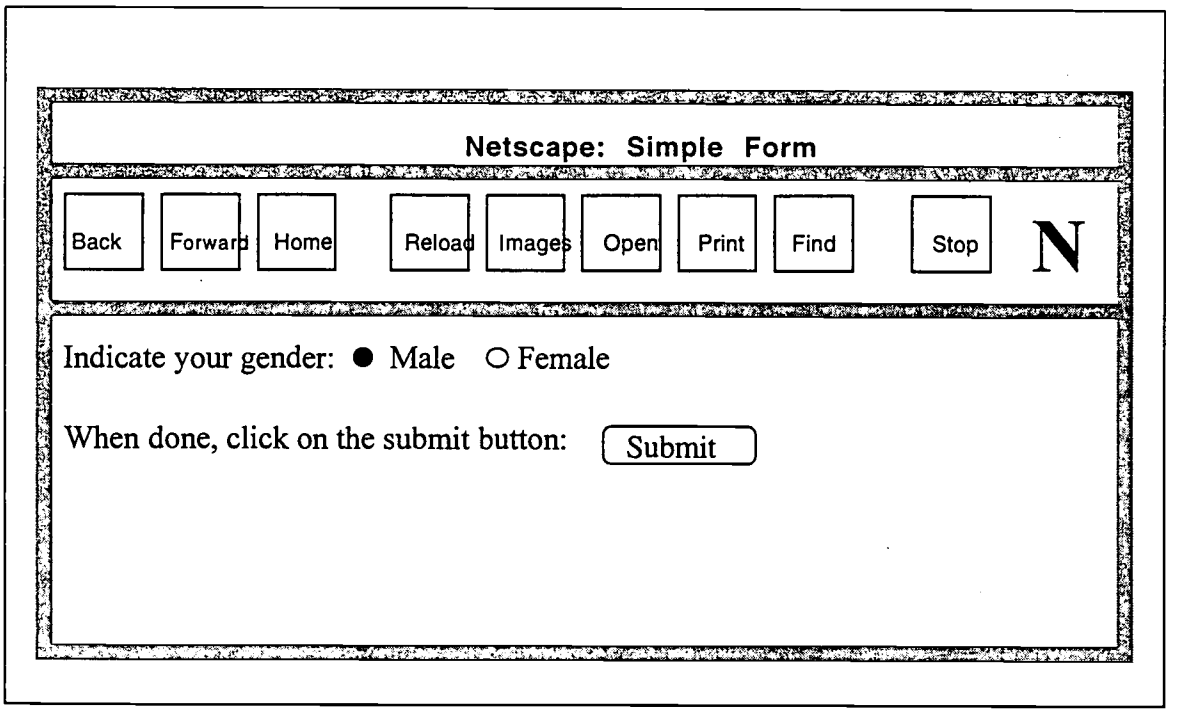
Commands	Comments
<html>	This initiates the HTML document.
<head><title>Simple Form</title></head>	The title "Simple Form" will appear on the user's browser screen.
<body>	This initiates body of the HTML document.
<form method="post" action="/htbin/cgi-mailto/ your-email@your.university.edu">	This initiates the form and indicates results will be posted to the account specified in the "action" details.
Indicate your gender:	These directions appear on the screen.
<input type="radio" name="Gender" value="M" checked> Male	There are several input types. This variable is named Gender, and can have two values (M or F). M is automatically selected.
<input type="radio" name="Gender" value="F"> Female	The words "Male" and "Female" appear on the screen to the right of the selection buttons.
<p>	This causes a blank line to appear between the gender item and the submit directions.
When done, click on submit:	These directions appear on the screen.
<input type="submit" value="Submit">	A button with the word "Submit" appears on the screen. When selected, the results are posted.
</form>	This ends the form.
</body>	This ends the body of the HTML document.
</html>	This ends the HTML document.

The researcher can select from three main kinds of input types to structure responses: radio, checkbox and text. (A fourth kind of input, called select, is not described in this paper.) The Simple Form illustrated in figures 1 and 2 uses a "radio" input. Radio-type input forces users to make one selection from a set of choices provided with the same name on the input tag. The checkbox-type input is a single choice. It is either yes, or no; on or off. It is appropriate for a list where respondents are asked to "Check all that apply". The text-type input permits the respondent to provide comments to an open-ended question. On the input tag, after indicating the type of input sought, additional subcommands structure the response, as shown in table 3.

Figure 1. Simple HTML Form File

```
<html>
<body>
<head><title>Simple Form</title></head>
<form method="post"
action="/htbin/cgi-mailto/furlongd@gbms01.uwgb.edu">
Indicate your gender:
<input type="radio" name="Gender" value="M" checked>Male
<input type="radio" name="Gender" value="F">Female
<p>
When done, click on the submit button:
<input type="submit" value="Submit">
</form>
</body>
</html>
```

Figure 2. Appearance of Simple HTML Form on Browser



(Exact appearance varies from system to system.)

Table 3. Input Types and Their Sub-commands

INPUT=	NAME=	VALUE=	Other subcommands
"radio"	"variable name"	"Value" The value of the selected choice will appear in the data file.	CHECKED If this appears after a value, that value will be treated as the default.
"checkbox"	"variable name"	"Value" The value will appear if the item is selected, otherwise the variable will be blank.	CHECKED If this appears after the value, the default for the checkbox is selected (as opposed to empty).
"text"	"variable name"	"Value" The value will appear as the default. Value is optional for text-type input.	MAXLENGTH=xx This determines the maximum number of characters accepted as input.

While Input="text" works well for open-ended items that anticipate short, or single-word responses, the textarea tag works better for longer answers. Textarea tags have three subcommands: name, the variable's name; rows, the height of the text entry field; and cols, the width in characters of the text entry field. The dimensions of the field on the screen do not have any bearing on the amount of text respondents can provide: textarea tags automatically have scroll bars and accept unlimited amounts of text. Unlike the input tag, the textarea tag requires a terminating, or /textarea tag. The tag below would create an entry field four rows tall and 25 columns wide for respondents to write about their plans:

<textarea name="Plans" rows=4 cols=25></textarea>

After the user completes the form and presses the submit button, the file server packages the response and sends it to the researcher's electronic mail address. Figure 3 shows what the response to the Simple Form might look like in the researcher's in-coming electronic mail account.

Figure 3. Structure of Response to Simple Form Example

```
From: IN%"HTTP_SERVER@university.edu"     21-APR-1997 12:20
To:   IN%"your.address@university.edu"
CC:
Subj:

(Other electronic mail processing details, varying
according to the system used)

REMOTE_ADDRESS: 143.200.30.67
Gender: F
```

As with surveying with a distribution list, when using an HTML form the researcher must do much more than simply prepare the instrument. Two important decisions relate to controlling the sample and processing the results. An HTML survey could potentially sit on a university's Web site for weeks without having a respondent find it. Or, an instrument designed for students could gather responses from faculty and staff. Figuring out how to control the sample is critical. If the instrument is positioned in a hart-to-miss location -- such as being linked with a flashing arrow to the institution's Home Page -- the researcher must decide if it is important to track who responds. Necessary demographic questions can be added into the form, or a student identification can be requested. If identification is requested, respondents should be informed that their answers are not anonymous. An alternate method of distribution involves using some other means to inform potential respondents how to find an otherwise difficult to locate survey. For example, instructors can announce the http: address of the instrument in relevant classes.

A second set of issues surrounds handling responses. Because the forms process enables the researcher to collect answers to closed-ended questions in a very structured way, it is quite easy to use statistical packages like SAS and SPSS to tally up the answers. For example, if a survey contains five items, each electronic mail response will contain five lines. The responses to the first item will always appear on the first line. The first element on each line will be the name of the relevant variable, which will be followed by a colon, a space, and the value the respondent selected for that item. The researcher would collect the electronic mail responses, concatenate the data into one long file, and write a SAS or SPSS program to read the data. Each case would consist of five records, or lines, and each variable's location could be easily identified. Including multiline textarea responses along with the closed-ended questions somewhat complicates the process. Because users have the option of typing a lot or a little, the in-coming electronic mail responses no longer have identical structures. (However, it is possible to sort out the open-ended text and remove it from the file before processing the rest of the information with a statistical package. And, it is possible to use word processing macros to restructure the text in such a way that a statistical package can be used.)

A Case Study of the HTML Form Method: The "First-year Survey"

In Fall 1996, the Counseling Center and Office of Institutional Research at the University of Wisconsin - Green Bay conducted a survey of first-time freshmen using an HTML form posted to the institution's Web site. The instrument sought to learn how new students handled the transition from high school, or work and family, to college, and to evaluate some of the things the institution does to facilitate that transition. The form contained

twelve closed-ended questions and ten open-ended questions. Initial drafts of the survey contained sensitive questions about alcohol use and sex practices. However, the research design did not work well for such private questions. First of all, students completed the form during class time. More critically, students responses remain visible on the computer screen until all portions are complete and the form is submitted. It would be very easy for students to see each others' answers, even unintentionally. The final questionnaire tried to keep the public nature of the distribution method in mind.

Figures 4 and 5 contain a portion of the instrument. The complete survey can be viewed at http://www.uwgb.edu/~furlongd/fy.html. As with the Feedback Project, this survey was experimental and exploratory and no identification was collected or tracked. In November 1996, researchers asked instructors teaching freshmen writing to have their students complete the survey as part of a class exercise on using the Internet. The form was made available to the writing classes for a two-week period in December. Students from seven writing sections submitted 106 usable responses.

The responses were concatenated into a single word processing file which was processed two ways. First, the file was read with a statistical package to generate simple frequency distributions for the closed items. Second, a macro was written to remove unnecessary paragraph breaks so that each variable could be treated like a single paragraph. This permitted sorting the file by paragraphs, and then grouping all of the open-ended responses to a particular item together to facilitate an analysis of their content. For the closed items, 104 of the 106 surveys were complete, which might indicate that respondents did not have any problems completing the task. The open-ended responses contained no systematic error patterns that would indicate students experienced technical difficulties working with the textarea boxes. Two instructors who administered the survey reported that some students could not submit their instrument, but no technical explanations for the problem ever emerged. By the end of December, researchers had completed the frequency tallies and content analysis, and had written a report to senior administrators. The complete turn-around time for this project was less than one semester.

Strengths and Weaknesses: HTML vs. Lists vs. Traditional Methods

This concluding section will summarize the relative strengths of HTML form and distribution list electronic mail surveys, and will then address some weaknesses of those techniques relative to more traditional methods. Some of the factors one might consider when choosing between HTML form and distribution list surveys pertain to technical skills, the topic and predominant question type, and sample bias.

Figure 4. HTML Code for Part of First-Year Survey

```
<html>
<head><title>First-Year Student Feedback Request</title></head>
<h2>First-Year Student Feedback Request</h2>
<p><hr>
Please help us better serve new students in the future by telling us about
your experience as a new student at the University of Wisconsin-Green Bay.
All responses will be compiled in such a way as to keep your answers
anonymous. Thank you for your help.<hr>
<a name="Submit"></a>
<form method="post" action="/htbin/cgi-mailto/counsel@gbms01.uwgb.edu">
<p>What is your student status in Fall 1996?
<input type="radio" name="V1" value="NF" checked>New Freshman
<input type="radio" name="V1" value="TR">Transfer
<p><hr><center><h3>I. ACADEMIC EXPERIENCE</H3></CENTER>
<p><b>So far, what do you like MOST about your classes at UW-Green Bay?</b>
(When entering text, you <i>may</i> press the return key to start new lines
if you would like.  You may type as much as you like, using as many lines as
you would like.)
<blockquote><textarea name="V2" rows=4 cols=60></textarea></blockquote>
<p><b>What do you like LEAST about your classes at UW-Green Bay?</b>
<blockquote><textarea name="V3" rows=4 cols=60></textarea></blockquote>

- - - - - - - (portion skipped here) - - - - - - -

<b>How important do you think it is for UW-Green Bay to provide
first-year students with the following information?</b><p>
1 = Very Important<br>
2 = Important<br>
3 = Neither important nor unimportant<br>
4 = Unimportant<br>
5 = Very Unimportant<br>
<p><ol>
<li><b>Campus rules and regulations:</b>
<input type="radio" name="v10" value="1">1
<input type="radio" name="v10" value="2">2
<input type="radio" name="v10" value="3">3
<input type="radio" name="v10" value="4">4
<input type="radio" name="v10" value="5">5<br><p>
<li><b>Alcohol/drug potential for abuse:</b>
<input type="radio" name="v11" value="1">1
<input type="radio" name="v11" value="2">2
<input type="radio" name="v11" value="3">3
<input type="radio" name="v11" value="4">4
<input type="radio" name="v11" value="5">5<br><p>

- - - - - - - (portion skipped here) - - - - - - -

<hr><center><h3>THANK YOU FOR YOUR FEEDBACK!</H3></CENTER>
When your survey is complete, click on the submit button:
<input type="submit" value="Submit">
</form>
</body>
</html>
```

Figure 5. Appearance of Part of First-year Survey on Browser

Netscape: First-Year Student Feedback Request

Back | Forward | Home | Reload | Images | Open | Print | Find | Stop | N

First-year Student Feedback Request

Please help us better serve new students in the future by telling us about your experience as a new student at the University of Wisconsin-Green Bay. All responses will be compiled in such a way as to keep your answers anonymous. Thank you for your help.

I. ACADEMIC EXPERIENCES

So far, what do you like MOST about your classes at UW-Green Bay? (When entering text, you *may* press the return key to start new lines if you would like. You may type as much as you like, using as many lines as you would like.)

What do you like LEAST about your classes at UW-Green Bay?

- - - - - - - (portion skipped here) - - - - - -

How important do you think it is for UW-Green Bay to provide first-year students with the following information?
1 = Very Important
2 = Important
3 = Neither Important nor Unimportant
4 = Unimportant
5 = Very Unimportant

1. Campus rules and regulations: 1 2 3 4 5
2. Alcohol/drug potential for abuse: 1 2 3 4 5

- - - - - - - (portion skipped here) - - - - - -

THANK YOU FOR YOUR FEEDBACK!

When your survey is complete, click on the submit button: **Submit**

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The technical skills of both the researcher and the university community have a bearing on method choice. Using an HTML form requires that the institution be capable of mounting web pages and be supportive teaching people how to use the internet. From the researcher's perspective, this method requires learning about HTML and web page construction, or developing some staunch allies in the computer center. Doing distribution list surveys also has technical requirements. The institution must make electronic mail available to the target population, and the researcher must know how to send messages and work with in-coming mail. Developing the distribution list may require working with computer center professionals.

The survey's topic and predominant question format can also cause one method to have merits relative to the other. HTML forms are optimal for closed-ended items, while distribution list surveys are optimal for open-ended items. Extremely sensitive topics should probably stay off the internet entirely. An HTML form would be much easier to read from across the room than an electronic mail message, so slightly sensitive issues might be better suited to the distribution list method. On the other hand, when students respond to a question posted to a distribution list, their electronic mail response will contain their own address. It is much easier to guarantee complete anonymity through an HTML form submission, which automatically identifies the name of the file server as the sender of the message.

Because the distribution list method returns data that automatically contains the student's address, tracking respondents, doing second waves, and merging the survey results with other information in the institution's data base is possible. HTML surveys are not done in waves. If the researcher must compare attributes of respondents to the population at large in order to evaluate potential biases, the HTML form must ask respondents to identify themselves.

Sample bias represents one problem area that affects both of these methods. Clearly, those who read and respond to electronic mail do not represent the population of all students. And, it is probably safe to say that more people have access to electronic mail than to Web Pages: learning how to read your electronic mail is one skill; learning how to surf the Web is another thing entirely. An institution might end up with business, computer science and public policy majors over-represented in the results, and art, music and theater majors almost absent. Other potential biases might also warrant concern. For example, a 1996 mail survey of non-traditional aged students at the University of Wisconsin - Green Bay found that over half of them had never used electronic mail or accessed the internet.

The title of this paper, "Between Anecdote and Science", suggests that electronic mail surveys can produce data for an organization that is much more complete, in terms of reliability, validity and representativeness, than the anecdotal evidence we must often use. Because the technology is new to researchers and new to participants, it seems unwise to expect electronic mail surveying to produce results that equal the reliability, validity and representativeness of traditional methods (see table 4). As internet access expands and people grow increasingly comfortable with electronic means of communications, many of the more obvious sample biases should dissipate.

Table 4. Electronic Mail Surveying vs. Traditional Methods

Research Goals	Electronic Mail Surveys	Traditional Survey Methods
Save Money	Yes	No
Save Time	Yes	No
Maximize Representativeness	No	Yes

In the past, researchers might have hesitated to develop a survey to evaluate a small, new or ad-hoc program because of the time and costs involved. Electronic mail surveying offers many potential time and material savings: there are no surveys to duplicate or fold, no envelopes to purchase, no mailings to stuff, no stamps to purchase and affix, no zip codes to sort, and no data to key. A researcher could design and pilot an instrument in one week, administer it the following week, do a follow-up in week three, and analyze the results in the fourth week. Organizations that have relied on anecdotal evidence as a primary way of evaluating certain programs because it was not feasible to do a long and costly mail survey or labor intensive phone or face interview can use electronic surveying to gather more generalizable conclusions about that program's merits. The data might not be quite as representative as from a mail survey, but they would certainly be more representative than no data at all.

References

Carr, H.H. (1991). Is using computer-based questionnaires better than using paper? *Journal of Systems Management*, 19, 37.

Grobe, M. (1996). *HTML Quick Reference*. Academic Computing Services, The University of Kansas. [http://www.cc.ukans.edu/info/HTML_quick.html]

Kiesler, S. and Sproull, L.S. (1986). Response effects in the electronic survey. *Public Opinion Quarterly* 50, 402-13.

National Center for Supercomputing Applications. (1996). *A beginner's Guide to HTML*. University of Illinois at Urbana-Champaign. [http://www.ncsa.uiuc.edu/General/Internet/WWW/HTMLPrimerAll.html]

Rosenfeld, Paul, et. al. (1993). Computer-administered surveys in organizational settings: alternatives, advantages, and applications. *American Behavioral Scientist*, 36(4), 485-511.

Sproull, L.S. (1986). Using electronic mail for data collection in organizational research. *Academy of Management Journal*, 29, 159-69.

Stienfield, C.W. (1990). Computer-mediated communications in the organization: using electronic mail at Xerox. In C.W. Stienfield (Ed.), *Organizational and Communication Theory*. Newbury Park, CA: Sage.

Synodinos, N.C., and Brennan, J.M. (1988). Computer interactive interviewing in survey research. *Psychology and Marketing*, 5(2), 117-37.

Thach, L. (1995). Using e-mail to conduct survey research. *Educational Technology*, 35, 37-31.

Walsh, J.P., Kiesler, S., Sproull, L.S., and Hesse, B.W. (1992). Self-selected and randomly selected respondents in a computer network survey. *Public Opinion Quarterly*, 56, 241-44.

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