Electronic Mail Vs. Mail Survey Response Rates

Researchers can no longer ignore the possibilities computer technology hold for the future of our profession.

By Barbara A. Schuldt and Jeff W. Totten

An exploratory study compared response rates from electronic mail surveys with those of mail questionnaires. As expected, the response rate for electronic mail was low and confined primarily to respondents who had a greater interest in technology than the average respondent. Nevertheless, the authors feel that further study into electronic mail surveying is warranted since it may become the standard data collection method in the 21st century.

The emergence and continued growth of computer technology have become facts in the business world. More and more industries have been, and continue to be, affected by the continuous changes in computer technology.

The marketing research industry is no different. We have seen the development of statistical packages that run on computers (affecting data analysis) and the combination of questionnaire design with personal computers (affecting data collection). We now have CATI (computer-assisted telephone interviewing) and CAPI (computer-assisted personal interviewing). And the growth in telecommunications, linked with computerization, has resulted in the development of facsimile (fax) machines.

Marketing researchers are just beginning to see how such innovations can be of use in conducting research. Fax machines, instead of the mail, have been used to send out questionnaires. The existence of electronic mail systems led us to wonder whether electronic mail had been used as a method for collecting data as well as what the response rate would be. Therefore, we conducted an exploratory study to relate e-mail response rates to that of mail surveys.

RESPONSE RATE CONCERNS

Over the years we have seen a substantial amount of research that addressed how to improve response rates for different types of surveys. A good portion of the research focused on improving response rates for mail surveys, given that this method typically has the poorest response rate of the four traditional methods: telephone, personal interview, mail intercept, and mail.

Researchers have looked at the impact of several factors that tend to influence response rates: postage, respondent anonymity, advance notification, follow-up letters, monetary and nonmonetary incentives, questionnaire length and color, sponsor identification, and other miscellaneous manipulations.

Applying Computer Technology

With the advent of computers, marketing researchers have started to assess using this technology in data collection. Computers have been used to
conduct surveys over the telephone, where the only
human contact required is the respondent (unlike
CATI). Michael Havice (1990) studied the noncon-
tact and refusal rates for electronic telephone sur-
veys and found little difference between rates for an
electronic survey vs. a personal telephone survey.

Sara Kiesler and Lee Sproull (1986) studied the
response effects associated with electronic surveys
vs. paper surveys and found a higher response rate
for the paper survey (75% vs. 67%), but a faster
response time for the electronic survey (9.6 days
vs. 10.8 days). The advantages and disadvantages
of computerized questionnaires also have been
outlined by other researchers.

Electronic mail usage within organizations has
been another area of study. Mary Sumner (1988) sur-
veyed users of electronic mail (managers and techni-
cal professionals) as to e-mail's use in and impact on
organizational communications. Although uncovering
certain benefits of electronic mail vis-a-vis commu-
ication within a company, Sumner did not clearly
indicate in her methodology whether or not users
received the questionnaire via electronic mail.

Sproull (1986) compared electronic mail with
face-to-face interviews as a data collection
method in a Fortune 500 manufacturer. Participation
rates were 73% for electronic mail and 87% for
interviews. Data collection, however, was
twice as fast with electronic mail as with the
interviews. Respondent attitudes toward providing
data via e-mail were mixed, though mean
responses were neutral.

Lorraine Parker (1992) reported on AT&T’s
use of e-mail to gather data from its employees
who were working overseas. One hundred
employees had e-mail addresses and, therefore,
were sent the survey via this method. Forty
employees did not have e-mail addresses,
and were sent the survey via company mail pouch.
The response rate for e-mail was much higher, 68% vs.
38%. Twenty-eight percent of the e-mail respon-
dents, however, sent their survey responses back
in the form of paper surveys.

Discipline Lagging
Several researchers have pointed out the need for
more research in the area of computerized question-
naires and on electronic mail as a data collection
method. They also point out how marketing research
is lagging in adapting such innovations in computer
technology. Sproull notes, “As EMS [electronic
mail systems] becomes more prevalent in organiza-
tions, it may become an appropriate medium for
collecting data from organization members.”

William Neal (1989) points out that affordable
access to computer power “gives us the ability
to develop creative new approaches to the procedures
and methods we use to conduct marketing research
projects. Almost daily, we are seeing new software
developments that allow us to be more creative and
more effective in our professional endeavors. Yet, as a
whole, we, as an industry, are still lagging in our adap-
tation and the creative application of this revolutionary
technology to our business and our profession.”

METHODOLOGY
To determine the response rate for an elec-
tronic mail survey, we looked for convenient
access to an e-mail system, which we chose the e-mail
system known as Bitnet, which connects universities
across the nation and compared the response rate from e-mail to that of a mail sur-
vey. We decided to assess faculty perceptions of
computer shareware copying, similar to the study of student views on this topic conducted by David Munro and his colleagues in 1991.

We defined our population as all MIS and mar-
keting faculty at U.S. colleges and universities.
We limited our population to these two business
disciplines because of convenience and budget
constraints. The sampling frame for MIS profes-
sors was a directory of all MIS faculty in the U.S.
from McGraw-Hill Inc. The sampling frame for
marketing professors was the 1992-93 membership
directory of the Academy of Marketing Sci-
ence. Our initial sample sizes were 200 for the
mail survey and 343 for the e-mail survey.

Using a simple random sample, we selected
100 marketing professors from the A.M.S.
directory and 100 MIS professors from the
McGraw-Hill directory for the mail survey. The
McGraw-Hill directory provided Bitnet
addresses for MIS professors. Since there was
no direct cost involved in sending the e-mail
survey, we identified 225 MIS professors who
had Bitnet addresses in the directory.

Finding Bitnet addresses for marketing profes-
sors proved to be more difficult. Though current,
the A.M.S. directory did not include Bitnet
addresses. By matching schools for which a “stan-
dard” address form was identifiable (either the
school had one address format or one format was
standard), checking business cards for Bitnet
addresses, and skimming through associations' newsletters looking for addresses, we gathered
118 marketing Bitnet addresses.

An initial questionnaire was developed and
pretested on the marketing and MIS faculty at a
Midwestern regional university (n = 11). The
questionnaire was revised, ending up with a length
of two pages, printed front and back. The ques-
tionnaire also received approval from the universi-
ty’s Use of Human Subjects committee.

The questions were kept simple because we were
placing a survey on the e-mail system for the first time.
The authors followed the structured format, using
dichotomous, multichotomous, and multiple response
questions. With the assistance of the university’s e-mail
expert, we prepared the survey for electronic transfer
and mailing. Given the limited budget, only a one-time
mailing was conducted. Given the lack of direct cost, a
second e-mail transfer was planned.

Response Rate
Two hundred questionnaires and cover letters
were mailed on Aug. 28, 1992. On Aug. 31, 343
questionnaires were electronically transferred via
Bitnet. A second electronic transfer via Bitnet was
made on Sept. 13 to 197 professors. Of the initial 343 electronic mail addresses, 125 came back as incomplete or inaccurate and, thus, were thrown out. Most of these were from marketing professors (78 vs. 47 for MIS).

Mail survey respondents returned 113 usable questionnaires by the cutoff date (Oct. 5), yielding an excellent response rate of 56.5%. Forty-two questionnaires were returned via electronic mail, yielding an effective response rate of 19.3%. It should be noted that because three electronic mail surveys were returned via the mail, they were included in the mail category for purposes of analysis.

RESULTS

Because the focus of this article is comparing response rates for e-mail to traditional mail methods of data collection, we will not discuss the survey results on shareware attitudes here. Those findings can be found in a paper we presented in 1993 entitled, "End Users' Perceptions of Public Domain Software Usage."

Exhibit 1 displays the cumulative response distributions, based on 218 questionnaires sent via electronic mail and 200 questionnaires sent by mail. Exhibit 2 shows the daily response rates for the two methods over the 36-day period of data collection. Because some e-mail responses were received via the mail, they were included in the mail category for purposes of analysis.

Electronic mail surveys were returned at a faster rate initially. On Sept. 2, the return ratio was 9:1 (18 to 2). But the rate of return quickly shifted to the mail survey method, with the ratio falling from 9:1 to 4.2:1 (Sept. 3) to .85:1 (Sept. 4) to .34:1 (Sept. 8). A two-sample, one-tailed Kolmogorov-Smirnov test showed the difference in the cumulative response distributions to be statistically significant at the .0000 level.

The response rates were averaged over the 36-day period of data collection. The average number of responses by mail was 3.14, whereas the average number of responses by e-mail was 1.17. This difference is not significant in a two-tailed, independent t-test (p = .1885).

LIMITATIONS

Some weaknesses of this exploratory study need to be addressed. One is the manner in which the e-mail sample was selected. The selection process was, of necessity, a nonprobability sample in which our judgment was used. Certainly, the marketing sample size was negatively affected by problems in finding e-mail addresses.

A second weakness lies in the design of the questionnaire. We would have liked to use more ordinal and interval-scaled questions, but were uncertain about how well scales would come out (in terms of holding the tabs) in the recipients' e-mail accounts.

A third limitation is timing. We sent out the questionnaires close to the beginning of our fall semester. However, many schools start earlier than we do, so professors may have ignored our surveys—especially the e-mail ones—because they were busy starting their own semesters. Better timing may have improved response rates overall.

A fourth limitation is the fact that, for our convenience, we used a university e-mail system instead of a business system. The uniqueness of this system may well restrict the application of the findings to the business world.

ENLIGHTENING FINDINGS

This was certainly an eye-opening experience for us. We watched with interest the changes in the response rates of the two methods and were pleased with the high response rate for a one-time, low-budget mail survey. We were disappointed, but not very surprised, in the low response rate for electronic mail.

Most of those who responded via e-mail were MIS/CIS professors, which we expected. MIS/CIS professors are most likely to be heavy users of electronic mail systems such as Bitnet, and see these systems as being fairly user-friendly. Given our findings, it appears that marketing professors in our sample did not use e-mail as often or were not as comfortable with its use as were the MIS/CIS professors. Additional research needs to be done to determine if this is a true characteristic of marketing professors.

E-mail Pros and Cons

Marketing researchers should investigate the use of electronic mail as a data collection method further. Parker clearly addressed the advantages of e-mail:

- The elimination of time-zone hassles.
- Not wasting paper (environmentally correct).
- Fast and easy to use.
• Delivery is certain.
• Cost is reasonable.
• Flexibility in response (e-mail, mail, or fax).

One reviewer questioned the reality of Parker’s third, fourth and fifth points and suggested another advantage. E-mail could be useful if a quick turnaround (i.e., response) is very important.

Techniques used to enhance the response rate of mail surveys also are applicable for electronic mail surveys. A prenotification phone call and a follow-up reminder postcard are tools that can augment the use of e-mail as the main data collection method.

Although we believe marketing researchers should pay more attention to electronic mail as an up-and-coming method of collecting data, there are some caveats. Again, Parker described the constraints best:

• Message receivers must subscribe to an e-mail system.
• Target population must be finite.
• Rigid keying requirements make clear, simple, and correct directions a necessity.
• System compatibility is a potential problem.
• Form configuration on system may limit size of survey.
• The human factor—fear of computers, inexperience with e-mail—may constitute a response bias.

The continued growth of computer technology means that marketing researchers no longer can afford to ignore the possibilities for use in their discipline. To be sure, this method may eventually suffer the same problem that users of fax machines face, namely, junk mail.

Nevertheless, it is important for researchers to test out electronic mail to determine its full potential as a method for data collection. If newspapers can be accessed on-line via computer, then why not one’s mail? It follows then that electronic mail may become the standard data collection method in the 21st century.

Future Prospects
Electronic mail systems are not standardized. Unfortunately, most e-mail systems today have inconsistent naming conventions and addressing schemes. Therefore, messages crossing bridges and gateways are frequently lost and undelivered. Additionally, many LANs (Local Area Networks) can’t easily interact with other user directories.

But electronic mail systems are moving toward standardization, a fact that will help make e-mail more useful as a data collection method. In several years, after the standards are implemented, e-mail will be as easy to use as the phone or the fax. As more people become familiar with, and users of, electronic mail, higher response rates certainly will be achievable, at least until junk e-mail makes users callous.

**Exhibit 2**

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<table>
<thead>
<tr>
<th>Daily response rate</th>
</tr>
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<tbody>
<tr>
<td>1 2 3 4 5 10 15 20 25 30 35</td>
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<tr>
<td>10 20 30 40 50</td>
</tr>
</tbody>
</table>
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**36-day data collection period**

**Mail**

**E-mail**

**Future Prospects**

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**ADDITIONAL READING**


