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**A STUDY OF FACTORS AFFECTING RESPONSES  
IN ELECTRONIC MAIL SURVEYS**

by

**Kimberly Post Good**

**A Dissertation  
Submitted to the  
Faculty of The Graduate College  
in partial fulfillment of the  
requirements for the  
Degree of Doctor of Philosophy  
Department of Educational Leadership**

**Western Michigan University  
Kalamazoo, Michigan  
December 1997**

## **A STUDY OF FACTORS AFFECTING RESPONSES IN ELECTRONIC MAIL SURVEYS**

**Kimberly Post Good, Ph.D.**

**Western Michigan University, 1997**

Electronic mail is becoming increasingly popular as a means to communicate information expediently and inexpensively. One use of electronic mail that has not been well researched is its viability as a tool for data collection. A handful of studies have focused on the differences that exist in responses and response rates of electronic mail surveying compared to other methods of surveying (telephone and postal mail). One area that has not been studied at all is the factors affecting the response rates of electronic mail surveys.

This research study sought to build upon the existing research base of what is known about using electronic mail surveys as a data collection tool. The purpose of the study was to examine various factors, which may be related to response rate for the electronic mail survey. Specifically, the effects of prenotification, personalization of cover letters, and follow-up were the variables studied. Additionally examined was whether there are differences in surveying by regular mail and electronic mail in terms of response rate, time to respond, and the survey responses.

A sample of 528 faculty and staff members from Western Michigan University was selected to take part in the study. The sample was divided into several

treatment groups to study each of the independent variables: electronic prenotification message prior to electronic survey; personally addressed cover letter and electronic mail survey; generically addressed cover letter and electronic mail survey; no follow-up letter and survey for nonrespondents; follow-up letter and survey for nonrespondents; and personalized regular postal mail survey.

Follow-up was the variable that most influenced the response rate of the electronic mail survey. Only about one fourth of the sample that did not receive follow-up responded and over 50% of the sample that did receive follow-up responded. Personalized regular mail surveys received a higher response rate than did electronic mail surveys (67% vs. 51%). Electronic mail surveys with precorrespondence and personalization coupled with follow-up produced no differences in response rates when compared to the personalized regular mail survey. Electronic mail surveys were completed and returned on average at a faster rate than regular mail surveys (3 days vs. 15 days)

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Kimberly Post Good

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## CHAPTER I

### INTRODUCTION

#### Overview of the Study

Mail, face-to-face, and telephone surveys have been the three primary methods used to survey individuals (Dillman, 1978). Each of these methods possesses certain advantages and disadvantages. Selection of a particular method requires the investigator to consider which method will best serve research needs based on the pros and cons associated with each and the purposes of the research.

Mail surveys, one of the longest existing methods, are generally lower in cost, in terms of administration, than the other two methods (Jaeger, 1988). It is also easier to establish confidentiality with this type of survey method and one is less likely to elicit socially desired bias (Rosenfeld, Doherty, Vicino, Kantor, & Graves, 1993). Mail surveys have their drawbacks as well, including item nonresponse and respondents selecting invalid responses. Respondents are also not able to ask for clarification on questions not understood due to the noninteractive nature of the survey medium.

Rosenfeld et al. (1993) identified seven advantages of face-to-face surveys as a method of data collection. Chief among these advantages is that the interviewer has greater control over the survey process. The interviewer can probe for a more

complete understanding of the results, has the opportunity to clarify any confusions the respondent may have, and can tailor the questions based on the respondent's answers to previous questions. Additionally, response rates tend to be higher for this method. According to Fowler (1988), surveys requiring an hour or more for completion tend to be better suited for face-to-face interviews. Face-to-face surveys have their liabilities, too, relative to the other survey methods. They are costly and time intensive. Interviewers must be trained so that the data gathered are consistent and comparable across interviewers. Because face-to-face surveys are not anonymous, individuals are more likely to give socially desirable responses.

Telephone surveys are less costly to administer than face-to-face surveys but higher than mail surveys. The interactive nature of the telephone permits the interviewer some of the same benefits as the face-to-face interview described previously. However, respondents' nonverbal behavior cannot be evaluated as is the case for the face-to-face survey (Rosenfeld et al., 1993). Rapport is also more difficult to establish over the telephone. As with face-to-face surveys, anonymity and confidentiality are more difficult to guarantee. As a result, respondents are more likely to respond in socially desirable ways.

A fourth method of surveying, electronic mail, is emerging as an alternative. In today's world, with an increasing move toward the use of and reliance on computers, surveying by electronic mail may become a viable method to collect data from individuals.

### Statement of the Problem

Although surveying by electronic mail has been in existence since the late 1970's (Kiesler & Sproull, 1986), only a handful of studies have assessed its effectiveness and usefulness as a tool for data collection. Studies completed in this area have looked at the response rates and response effects of electronic mail surveys as compared to regular mail and face-to-face surveys (Sproull, 1986; Kiesler & Sproull, 1986). Sproull (1986), in her comparison of electronic mail surveys and face-to-face interviews, found that electronic mail surveys produced a response rate of 73%, substantially lower than the 87% she received via the conventional method. Kiesler and Sproull (1986), in their comparison of electronic mail surveys and the traditional paper and pencil mail surveys concluded that respondents who answered electronically gave less socially desirable responses on subjective questions. Again more respondents returned the regular mail survey than the electronic mail survey (75 versus 67%). Both, though, were better than typical mailed questionnaire response rates reported in the literature. In a meta-analysis of response rates for mailed questionnaires, Heberlein and Baumgartner (1978) determined the average response rate for mail surveys to be 61%.

These studies provide some evidence that electronic mail surveying may become a useful data collection method of the future for researchers. However, it is necessary to continue studying the electronic mail survey. Kiesler and Sproull (1986) note, for example, "Our results show considerable similarity of response between the

paper and electronic survey but not so much that the two may be considered interchangeable without further research” (p.411).

The current study sought to expand on what is already known about surveying by electronic mail. Prior studies that compared surveying by electronic mail to other methods (regular mail and telephone surveys) have primarily examined differences in response rates. Building upon that research, this study focused on determining variables that contribute to a high electronic mail response rate. To date, no research has been undertaken to identify these variables.

Although there is scant research on electronic mail survey methods, there is considerable related research of variables that impact regular mail surveys. Researchers have studied the effects of personalization, types of postage, gratuities, questionnaire format, follow-up measures, to name just a few, to determine which of these variables and combinations of variables lead to a higher response rate (Baumgartner & Heberlein, 1978; Boser & Clark, 1996; Dillihunt, 1984). The current study explored some of these same variables to determine which, if any, enhanced the response rate for electronic mail surveys. Additionally, the study compared response rates of an electronic mail survey and a regular mail survey as well as the time needed to respond.

### Research Questions

The specific research questions addressed in this study were:

1. Are there differences between initial response rates for electronic mail surveys preceded by a prenotification message and electronic mail surveys distributed without prior correspondence with the potential respondents?
2. Are there differences between initial response rates for electronic mail surveys distributed with a personal salutation and electronic mail surveys distributed with a generic salutation?
3. Is there an increase in the response rate of electronic mail surveys after one follow-up is conducted?
4. Is there a difference in the response rate for electronic mail surveys with follow-up six days after the original survey is distributed versus those with no follow-up?
5. Is there a difference in response rate for electronic surveys with different types of employees?
6. Are there differences between initial response rates (before any follow-up measures are employed) by method of surveying (regular mail versus electronic mail)?
7. Are there differences between response rates for electronic mail surveys and regular mail surveys when one follow-up is introduced?
8. Are there differences between the time in receipt of the completed survey by method of surveying (regular mail versus electronic mail)?

Two additional secondary research questions were also explored. These questions related to response differences between the two methods of surveying.

9. Is there a difference in the length of response for open-ended questions for respondents of regular mail and electronic mail surveys?

10. Is there a difference in the nature of responses for regular mail survey and electronic mail survey respondents?

### Definition of Terms

For purposes of this study, the ensuing key terms have been defined in the following manner.

Surveying: The systematic process by which data are collected from people on a specific topic. It may take the form of a questionnaire (paper and pencil instrument) or it can be conducted as a face-to-face interview or over the telephone (Fink and Kosecoff, 1985).

Electronic mail surveying: The systematic process by which data are collected from individuals on a specific topic using a computer questionnaire delivered through electronic mail to an online sample or population (Thach, 1995).

Mail surveying: The systematic process by which data are collected from people on a specific topic using a paper and pencil, self-administered questionnaire delivered to the sample or population and returned to the researcher through regular postal mail (Babbie, 1990).

Response rate: The percentage of respondents in the initial sample from whom complete responses were obtained (Kidder & Judd, 1986). In computing response rate, it is acceptable practice to omit all surveys that could not be delivered

(Babbie, 1990). The response rate is calculated by computing the net sample size (initial sample size minus the number that could not be delivered). The number of returned and completed surveys is then divided by the net sample size.

Response time: A comparison between the time a survey is mailed (regular postal or electronic mail) and the receipt of completed surveys (Opperman, 1995).

Follow-up mailings: Refers to repeated efforts to contact nonrespondents in an attempt to motivate them to complete the survey (Fowler, 1993). Most common methods of follow-up include a letter and/or additional copies of the survey.

### Significance of the Study

There has been a substantial amount of research undertaken on the advantages and disadvantages of regular mail surveying and ways to address the problems associated with this method. Surveying by electronic mail is a relatively new phenomena and little research has been done in this area. There are advantages of surveying by electronic mail over regular mail including reduced time involved to send and reduced costs of distribution. If support is also found for an increase in response rate, reduced time needed to respond, and no difference in the quality of responses, surveying by electronic mail may become the preferred tool of researchers to survey individuals who have direct access to electronic mail.

### **Organization of Dissertation**

The next chapter, Review of Literature, contains the theoretical foundation for this study. Chapter III contains a description of the research design and the methodology of this study. The findings, as they relate to the research questions, are presented in Chapter IV. The final chapter, Chapter V, contains a summary of the study and a discussion of the findings, implications, and conclusions.



## CHAPTER II

### REVIEW OF LITERATURE

#### Introduction

Thach (1995) has classified key issues of electronic mail survey research into three broad categories: design, implementation, and response. These categories are not limited to electronic mail surveys but are relevant to other methods of surveying (regular mail, telephone, and face-to-face interviewing) as well. Through the course of this chapter, each of the issues in these three categories will be addressed as they relate to electronic mail and regular mail surveys. Findings from the literature will be used to substantiate the advantages that one method may have over the other. A secondary intent is to identify any differences there may be between the two methods of surveying.

The purpose of this study is to examine various factors which may be related to response rate for the electronic mail survey as well as to determine whether there are differences in surveying by regular mail and electronic mail in terms of response rate and time to respond. The first portion of the literature review will cover some of the design and implementation issues to be taken into consideration when conducting an electronic mail survey. The design and implementation of a survey can greatly influence the response rate of a survey if careful consideration is not given to these

aspects (Wilde, 1988). The second part of the literature review will discuss prior research on the study of the effects of various variables on the response rate for regular mail surveys, as this literature provides groundwork for the current study.

### Design Issues

Determining the survey objectives and questions to address the objectives is the first step in the development of a survey, followed by the actual design of the instrument. Four elements to be addressed in the design of the survey include the population and sample selection, layout and presentation of the survey, instructions for the respondents on how to complete and return the survey, and techniques which can be used to increase the response rate. Careful attention to each of the design issues greatly improves the chances one has of producing a survey that collects the intended information and produces results generalizable to the population (Alreck & Settle, 1985).

#### Population and Sample Selection

Following the decision to design a survey, identification of the population is the first basic design question to be answered (Weisberg & Bowen, 1977). The target population is the group of individuals defining the object of the study (Jaeger, 1988). The sampling frame refers to the list comprising the population from which the sample is selected. The sampling frame of an electronic mail survey is restricted to a population having access to a computer and to people who feel comfortable using one

(Kiesler & Sproull, 1986). It is further restricted to persons who have electronic mail accounts on their computers. Currently, this is a limited number of individuals.

Kiesler & Sproull (1986) describe the population for which electronic mail surveying is applicable as the following:

The population of interest for an electronic survey will be a community or organization with access to and familiarity with computers or computer networks. These groups will tend to be relatively well-educated, urban, white collar, and technologically sophisticated (p. 411).

This statement was made 10 years ago. Technology advances have made great strides in these last 10 years and more and more people are gaining access to online networks. Caution is still warranted, though, about the inferences to be made to the target population if the sample only contains persons with electronic mail addresses. This is parallel to the problems experienced 60 years ago when telephone surveys began their debut (Dillman, 1983). At that time, only about 35% of the households in the U.S. had telephones. The Literary Digest conducted a telephone survey to predict who would be the next president. The results of the survey predicted a landslide victory for Lyndon over Roosevelt. Using a telephone listing as a sampling frame created a bias in the results. This is a prime example of the precautions one should take when using a survey method to which not all of the target population has access. Times have changed in the last 60 years, and the large majority of households now have a telephone. Therefore, the same biases are not present to the same extent as were then. With rapid changes in technology and access to it, one would expect similar changes to occur with electronic mail and the number of individuals who have access to it.

### Layout and Presentation

When constructing a survey, a major issue, which needs thoughtful attention, is the layout and presentation. The format and graphic layout is important in determining the quality of data for self-administered questionnaires (Sanchez, 1992). Babbie (1990) maintains that the format of a survey can be just as significant in determining the quality of responses as the content and wording of the questions. A survey that is not visually attractive and easily readable can cause respondents to miss questions, confuse them as to what is being queried, or, in the worst case scenario, prohibit them from completing the instrument.

Particular care needs to be taken when devising electronic mail surveys. When distributing a survey on a public network as opposed to a private network, the survey designer needs to consider the myriad of computer systems to which the survey will be received. Unfortunately, a survey constructed on one's own computer screen may appear quite different or may even be unreadable on another monitor. A second constraint is that some systems limit the length of a document. This was a problem faced by surveyors at AT&T (Parker, 1992). To solve this dilemma, the document was sent to respondents in two segments--an undesirable approach to administering a survey since some respondents may elect to respond to the first part of the survey and not the second, and vice versa. A third issue is that not all electronic mail packages automatically include the initial document in the reply.

Electronic mail is also limited in format options. Bold, underlines, italics, check boxes, and other such types of items to make things more visually appealing

and readable to the respondent cannot be presented. Therefore, electronic mail surveys are not as easy to read, do not look as attractive, and may have limited response capabilities as compared to regular mail surveys.

### Instructions

Regular mail surveys often need little instruction to complete. They are a method with which nearly all individuals have familiarity (Rosenfeld et al., 1993). The paper medium is well understood and straightforward to complete (Thach, 1995). Electronic mail surveys, on the other hand, are novel and a method to which most people have had little, if any, exposure. Many users are not very familiar with their electronic mail systems and require more guidance than for traditional mailed surveys (Opperman, 1995). Since some electronic mail systems have rigid keying requirements, directions to respondents on how to respond and answer the survey must be made clear, simple, and error free (Parker, 1992). Additionally, directions need to be furnished for returning the survey. Opperman (1995) notes one problem with some older electronic mail systems is that they do not feature a "response" function. There are other situations when individuals may not have enough familiarity with the electronic mail packages they are using and not know how to reply back with a completed survey. In these instances, directions should also be provided giving respondents the option to print out a hard copy of the survey, complete and mail it back via the postal system.

## Implementation Issues

Implementation issues are concerned with the procedures that must be taken into consideration when administering a survey. Some of the key issues which should be dealt with include confidentiality and anonymity to respondents, cover letters, delivery, cost, and techniques to increase response rates (Thach, 1995).

### Confidentiality and Anonymity

Since most online systems include an individual's electronic mail address along with the response, there can not be anonymity. However, the researcher can still assure the respondents' confidentiality. That is respondents can be assured that the names and individual responses will not be disclosed. However, as Sproull (1986) points out, some respondents may worry about privacy invasion or lack of anonymity. Some may find this medium too impersonal for some kinds of questions.

These drawbacks are pertinent to regular mail surveys, too. Complete anonymity is often impossible (Fink & Kosecoff, 1985). Because researchers use code numbers for identification of nonrespondents and for follow-up purposes, responses can usually be linked to particular respondents.

### Cover Letters

Two of the purposes of cover letters are to explain the importance of the study being conducted and why it is important for respondents to complete the survey form (Dillman, 1978). In other words, a cover letter induces motivation for the respondent

to fill out and return the survey. In addition to the cover letter that accompanies the survey, a preinvitation letter inviting participants to complete the forthcoming survey is another way to motivate respondents and encourage their cooperation and participation. Thach (1995) suggests sending participants an electronic mail invitation to take part in the forthcoming survey in advance of distributing the survey. She rationalizes this approach by saying the use of a preinvitation requesting participants to indicate whether or not they will take part in the survey will provide the researcher with an indication of how many people will respond to the survey. An additional benefit to using this approach is the building of commitment to participate. If someone agrees to take part in a study, they are more likely to follow through with it. In a review of literature on factors associated with an increase in response rates for mail surveys, Dillihunt (1984) found the prenotification approach to be one tactic that plays a role in increased response rates.

Sproull (1986) recommends sending personally signed letters on letterhead in advance of the survey via regular mail. This may add credibility and legitimacy to the survey. No research has been undertaken to determine the effectiveness of these various utilization's of cover letters on the response rate. One chief drawback of sending out a mailed cover letter is an increase in costs to the whole survey process thus weakening what has been viewed as a major benefit of electronic mail surveys compared to other methods (Kiesler & Sproull, 1986).

Research on regular mail surveys that used personalized cover letters with form letters have found a difference in response rates (Rossi et al., 1993).

Personalized cover letters resulted in higher response rates. One would suspect similar results to occur with electronic mail surveys as well. It would be very easy for a researcher to define a distribution list containing the names of all individuals to be surveyed and send one survey to everyone on the list. This would be comparable to the mass mailing of a regular mail survey. One technique to personalize the electronic mail survey would be to individually send each potential respondent a survey. However, this hinders the process of surveying by adding an additional time element. One study using this approach was conducted by Anderson and Gansneder (1995). They personalized each of 488 surveys and cover letters, which were then sent electronically. The time involved was 12 hours for the initial mailing. They received a favorable response rate of 68%. It is not known whether there would have been differences had the surveys and cover letters been distributed in a mass mailing. This is another area where research could be pursued in electronic mail surveying and techniques, which affect the response rate.

### Delivery

The use of electronic mail has changed communication processes substantially by allowing users the opportunity to transmit and receive information within seconds. This fast mode of distribution makes electronic mail surveying an attractive option for researchers. Another advantage of electronic mail is that it can be sent and received any time of day or day of the week, unlike mail delivered through the postal system.

Some electronic mail packages also offer the opportunity to detect whether the



electronic mail has been delivered and opened by the recipient. This is especially important given that many individuals have been assigned electronic mail addresses that are not used.

### Cost

A major benefit of surveying by electronic mail is cost. Postage fees are avoided as are copying costs for duplicating the survey. In addition, charges are much less than traditional postage. Kiesler and Sproull (1986) believe that the costs savings alone may proliferate the use of surveying by electronic mail:

If only because it seems to reduce research costs, the electronic survey may become widespread. Once respondents have access to a computer or to a network, relatively lower marginal costs of collecting and communicating data electronically can be substituted for the substantial costs of interviewing, telephoning, and sending questionnaires through the mail (p. 403-404).

Chisholm (1995) noted that whereas the costs of surveying by conventional methods are proportionate to the number of individuals surveyed, this relationship is not true for surveys distributed by electronic mail. An electronic mail survey with 1,000 participants costs no more to deliver than one with ten participants.

### Techniques to Increase Response Rate

Receiving a high response rate is a concern of any researcher. A poor response rate reduces the credibility of the results (Fink & Kosecoff, 1985). Numerous studies have been undertaken to determine effective methods of increasing response rates in mail surveys. Common methods of elevating response rates include

follow-up reminder letters and the offering of gratuities to induce respondents to complete the survey (Fraenkel & Wallen, 1990; Pride, 1979).

Hopkins & Gullickson (1992) conducted a meta-analysis to compare the response rates of mailed surveys with and without a monetary gratuity. Their analysis revealed that when a gratuity was promised contingent upon completion and return of the survey, the response rate increased an average of 7%. When the gratuity was enclosed with the survey, the average response rate increased by 19%. The results of these meta-analyses have implications for increasing the response rate of electronic mail surveys as well, although with the electronic mail survey, one would need to base the provision of the gratuity contingent upon the return of the survey. To date, no studies have been completed to determine if using gratuities with electronic mail surveys will increase response rates.

Mailing follow-up reminder letters or additional copies of the survey to nonrespondents is a second method used to increase the response rate and is considered to be an effective method for increasing response rates for mail surveys (Babbie, 1990). Fowler (1993) claims that the most important difference between good mail surveys and poor mail surveys is the extent to which researchers make repeated contact with nonrespondents.

Dillman (1978), the developer of the Total Design Method for mail surveys, asserts that without follow-up mailings, response rates would be less than half of those normally attained using the Total Design Method. Heberlein and Baumgartner (1978), using a meta-analysis of factors affecting survey response rates on mailed

surveys found that one, two, and three follow-up mailings yielded an average return of about 20%, 12%, and 10% of the initial samples, respectively.

Dillman (1978) suggests that a follow-up letter should be sent via the U.S. postal service to nonrespondents at one, three, and seven weeks from the initial mailing date. In the case of electronic mail surveys, which are transmitted and received almost instantaneously, the time period between follow-ups may need to be shortened to provide the maximum response rate. Opperman (1995) received a response rate of 31.8% after his first electronic survey mailing. A follow-up was conducted after one week leading to an increase of 17% in the response rate. This increase is very similar to that found in the research on regularly mailed surveys, after one follow-up is conducted. However, Opperman found a rapid decrease in response rates two days after mailing and suggested that a second mailing might be more appropriate after just three to five days, rather than after one week.

Anderson & Harris (1995) received an initial response rate of about 25% on an electronically mailed survey. They used three follow-up messages which were sent to nonrespondents at 2, 4, and 8 weeks from the initial mailing date. The follow-up messages yielded returns of 16%, 18%, and 7%, respectively. Again, this illustrates the effect of repeated follow-ups on final response rates.

Anderson & Gansneder (1995) shortened the time intervals for follow-ups to one week for each of the three follow-ups in the electronic survey they distributed. The initial mailing produced a response rate of 19% with an additional 23%, and 13% for each follow-up, respectively.

These three examples of electronic mail surveys using various time intervals for follow-ups suggest that a short time interval between follow-ups is better, but do not provide any conclusive evidence regarding the most effective time at which reminder letters or additional surveys should be sent to nonrespondents.

### Response Issues

Response issues have been classified into the following three areas: response rates, response time, and response effects. Response rate pertains to the proportion of people responding to the survey as compared to the number of surveys distributed. Response time is the length of time for completed surveys to be returned to the researcher. Response effects address the errors that may exist in the results of the responses not due to sampling errors.

#### Response Rates

Response rate is simply defined as the number of people who respond to a survey divided by the number of surveys distributed, excluding undeliverables (Fink & Kosecoff, 1985). A high response rate is desirable for any survey. Without a high response rate the generalizability of the results obtained back to the target population become questionable.

The research undertaken with electronic mail surveys has exhibited respectable response rates. Of eight studies identified where electronic mail was employed as a method for surveying, six had response rates ranging from 67 to 73%

(Anderson & Gansneder, 1995; Kawasaki & Raven, 1995; Parker, 1992; Sproull, 1986; Sproull & Kiesler, 1986; Walsh, et al., 1992). This is high when compared to the average 61% received from traditional mail surveys (Heberlein & Baumgartner, 1978).

The response rates in the other two of the eight studies using electronic mail as a survey method were 41% and 48% (Komsky, 1991; Opperman, 1995). The lower response rate in Komosky's study is largely attributed to the fact that the university, the population from which her sample was selected, was not in session during the administration of the survey. Therefore, many of the potential respondents were not available to read their electronic mail messages.

In one study when a direct comparison was made between regular mail surveys and electronic mail surveys, the electronic mail survey response rate was not quite as high as the regular mail survey (Kiesler & Sproull, 1986). A 67% response rate was received for the electronic mail survey and 75% response rate for the regularly mailed survey. Parker (1992) found quite the opposite in another study. A survey dispatched by regular mail had a 38% response rate and a survey sent through electronic mail received a 68% response rate. Opperman (1995) had comparable findings. He received a 48% response rate to an electronic mail survey. This was much higher than the response rates, 26% and 33%, of the same surveys sent via regular mail in previous data collection attempts.

### Response Time

Response time is defined as the time taken for survey respondents to complete and return a survey. It is sometimes termed the completion rate (Babbie, 1990). Research comparing electronic mail surveys with regular mail surveys has found differences in the time taken to return the completed instrument by method of administration (Kiesler & Sproull, 1986; Kawasaki & Raven, 1995). Surveys administered through electronic mail were found to have a shorter response time than surveys sent via postal mail. Opperman (1995) received a 4.6% response rate on the same day the survey was sent out and a response rate of 23.6% after only two days following distribution. Traditional mail surveys take at least that long to reach potential respondents.

In a comparison of electronic mail and face-to-face surveys, Sproull (1986) found the time needed to collect the data was less than half as long by electronic mail. It took 5.6 days to receive a response rate of 73% from the electronic mail method and 12 days to collect data from the 87% of respondents who were interviewed.

### Response Effects

Sudman & Bradburn (1974) divide response effects into three divisions: (1) characteristics of the task itself, (2) interviewer characteristics or behavior, and (3) respondent behavior. Taking into consideration and examining the possible response effects are important because they may distort the results of the study.

Examples of characteristics of the task itself which may have a bearing on the response include effects of the questions, questionnaire design, and the interviewing situation. More specifically, they are items such as method of administration, closed or open-ended questions, saliency, position of question in survey, position of question relative to related questions, and social desirability of response.

Interviewer characteristics or behavior response effects encompass demographic factors and the interviewer role performance such as experience or training. Responder behavior, the third division of response effects, refers to the characteristics and motivation of the respondent.

The types of response effects examined in the research on electronic surveys fit into the first division, characteristics of the task itself. Two examples of response effects of the task itself that have been researched are the following: (1) respondents systematically not answering certain questions, giving incomplete answers, or not following instructions, and (2) selecting neutral or moderate categories.

Support has been detected for electronic mail surveys producing more extreme responses (Kiesler & Sproull, 1986; Sproull, 1986) than surveys performed by conventional methods. Kiesler & Sproull (1986) found electronic mail respondents exhibited more self disclosure in open-ended questions than respondents in the comparable paper and pencil survey. Electronic mail respondents also had fewer item incompletions and item completion mistakes than regular mail respondents. Sproull (1986) noted electronic mail survey respondents were more likely to respond in a less socially desired manner for subjective questions. Socially desired responses refer to

less extreme response which in closed-ended questions means the response to the neutral or middle category.

Rosenfeld et al. (1993), in their analysis of studies involving computer administered surveys, concluded there are no differences in the response differences in the results of computer versus paper surveys. Helgersen & Urlick (1989) reached similar conclusions in their study. In a comparison of an electronic and a paper and pencil questionnaire, they did not detect variation in responses for a particular method. However, unlike the previous studies reviewed, theirs was conducted in a laboratory setting rather than a real world, organizational type setting.

### Summary

Described in the previous section were some of the primary issues related to the design, implementation, and response of regular mail and electronic mail surveying. Through the discussion of those issues, it is evident that each method possesses certain strengths and weaknesses. Several of the key strengths and weaknesses of each method are highlighted in Table 1.

The two predominant advantages of electronic mail surveying are the low costs incurred during the implementation phase and the reduced time for distribution and collection of data. Sproull (1986) has expanded these advantages into four characteristics of electronic mail that make it useful for survey research. There are (1) speed, (2) asynchronous communication, (3) no intermediaries, and (4) ephemerality. Speed, the first characteristics refers to the short time, matter of



seconds, a survey can be disbursed to any part of the world. Electronic mail has the advantage of asynchronous communication meaning surveys can be read and replied to at the convenience of the respondent. Electronic mail is customarily read by the respondent. Consequently there are no intermediaries, secretaries or office staff,

Table 1  
Comparison of Strengths and Weakness of Electronic and Regular Mail Surveying

Method	Strengths	Weaknesses
Electronic Mail	Reduced data collection time	Survey format and layout a alterations
	Low costs	Difficulty conveying pictures/graphics
	No intermediaries	Lack of anonymity
	Asynchronous communication	Limited by population one can survey
	Ephemerality	Requires recipients familiarity with e-mail
	Easily ask for clarification/probe	Need for detailed completion instructions
	Ease of nonrespondent follow-up	
Regular Mail	Greater feeling of anonymity	Postage/printing costs
	Easily formatted in readable/eye attracting ways	Time delays in delivery/receipt
	Commonly known method of data collection	Possible item nonresponse
	Able to survey anyone with which an address is available	Additional probing/clarification difficult
	Able to enclose gratuities	Careful coding required to follow-up with nonrespondents

opening and sorting the mail as can be the case with postal mail. This fact may lead to an improved probability of the questionnaire being read and a response gathered. The final characteristic Sproull cites is the ephemerality of the message. Surveys appear on the screen and can effortlessly be deleted. Sproull claims this ephemeral quality is one which may stimulate respondents to respond to the questionnaire in a more forthright, honest way rather than in a socially desired way.

One limitation of surveying by electronic mail is the population one can survey using this method. Not everyone has access to or has an electronic mail address. The target population will need to be limited to persons having this method of communication. As far as getting responses, it will be limited to persons who are adept at using the electronic mail system and who check it on a regular basis. When a sample is drawn from this special population, results will only be generalizable back to persons having similar characteristics and not to a larger population.

Mail surveying is a method researchers have been using for over 100 years. The tools, paper and pencil, are quite ordinary to respondents. Little explanation is usually required to complete and return these types of surveys. Electronic mail, on the other hand, requires explicit instructions about how to complete and return the instrument. The computer is a tool that has not been used commonly for surveying purposes and, therefore, requires more explanation.

One disadvantage of mail surveying, as compared to electronic mail surveying, is the cost associated with duplication and mailing of the instruments. These costs are fairly negligible for electronic mail surveys. The second drawback is

the time involved for delivering, receiving, and returning the survey. For immediacy of data collection, the electronic mail survey has a distinct advantage. Mail surveys offer little interaction with the researcher. Hence, questions must be clear and free of ambiguity in order to gain an accurate picture of what is being measured. Due to the interactive nature of the computer, the respondent can seek clarification for questions not comprehended. The researcher is also able to probe and ask for interpretation of responses.

Research abounds on surveying by regular mail. However, surveying by electronic mail is a territory much less traversed at this point in time. Before the two methods may be considered interchangeable with one another more exploration and verification of electronic mail surveying needs to be ensued. This study examines several issues related to surveys and response rate.

## CHAPTER III

### METHODOLOGY

#### Introduction

The primary purpose of this study was to examine the effects of several variables on response rates for electronic mail surveys. A comparison of the response rates for an electronic mail survey and a regular mail survey were explored as well as the differences in time to respond for the two methods. This chapter contains a description of the research design and methodology for the study. Specifically, the chapter provided a description of the population, research procedures, and instrumentation. The operational hypotheses are then introduced concluding with an explanation of how the data were analyzed.

#### Population and Sample Selection

The defined population for the study was Western Michigan University (WMU) faculty and staff members who had an electronic mail address. Faculty and staff members are categorized by the University into four groups: faculty; administrative and professional; clerical and technical, and AFSCME (maintenance, food service, housing, custodial, grounds, and police personnel). For purposes of this study, the sampling frame was confined to the list of all full-time, benefits-eligible,

members of the AAUP faculty, administrative and professional staff, and clerical and technical staff possessing electronic mail accounts. Of the 2,221 faculty, administrative and professional staff, and clerical and technical staff, 2,047 of them possessed electronic mail accounts, as determined by a list obtained from University Computing Services.

In order to insure that the sample drawn from the sampling frame was representative and that all individuals had an equal opportunity of being selected, a systematic random sampling procedure was employed. Systematic sampling enables one to draw inferences from the sample to the population (Hinkle & Wiersma, 1994). A table of random numbers was used to locate the initial sampling point. Every third person was selected such that an initial group of 528 faculty and staff members were selected to take part in the study.

The decision of sample size for this study of electronic and regular mail surveying was determined using the sample size determination tables in Hinkle & Wiersma's Applied Statistics for the Behavioral Sciences (1994). With an alpha level of .05, power equivalent to .95, standardized effect size of .5 times the standard deviation (Cohen has classified this as a medium effect); and a two-tailed test, a sample size of 132 was required for each of the 4 groups being surveyed. The four groups to be surveyed included (1) a personalized regular mail survey group; (2) an electronic mail survey group who received pre correspondence in regards to the upcoming survey; (3) an electronic mail survey group who received a personalized

cover letter; and (4) an electronic mail survey group who received a generically addressed cover letter. Subjects were randomly assigned to one of the four groups. A total of 528 surveys were sent. Four surveys (three electronic and one regular mail) were returned to the sender as undeliverable.

### Implementation and Research Procedures

Two forms of the survey were designed (Appendices B and C). One survey form was constructed as a paper and pencil instrument to be delivered to the recipients through regular postal mail. The second was prepared for distribution by electronic mail. Both forms contained the identical content and questions were organized and presented in the same order. The only adjustment made was for the margins of the electronic mail survey. Margins were increased so that the survey would be readable on the respondents' screens. In essence, it reduced the line length.

The content of the survey was based on a need for data by the WMU Zest for Life department, the University's employee wellness program. The Zest for Life staff were interested in collecting data from the faculty and staff on their attitudes and current practices of certain health and wellness issues as well as their use of the Zest for Life program services and resources. Additionally, questions were asked regarding demographic factors. The survey was designed by the researcher based on input from the Zest for Life staff. There was a mix of open and closed-ended

questions and a variety of subjective and objective questions. (A cover letter explaining the purpose of the survey was also attached with each survey.)

Prior to administration of the surveys, both formats were piloted with six members of the target population. The pilot members were selected so that there was representation of each of the three types of employees and so that both genders were represented. The purpose of the pilot tests was to assist in determining content validity as well as soliciting feedback on the format and layout. Previously mentioned in the last chapter was the importance of providing clear, understandable directions for completion of the self-administered survey, particularly in the case of the less familiar electronic mail survey. The main intent of the pilot test was to reveal whether respondents would understand the directions provided and if they could answer the questions (Fink & Kosecoff, 1985). Revisions to the surveys were made based on feedback from the pilot tests. These revisions included reducing the redundancy of information provided in the cover letter portion of the message and similar information presented in the survey directions and further explanation on using the reply mode to respond back to the survey. Suggestions were also made on reordering the survey questions in order that like questions be grouped together.

One-fourth of the sample received a cover letter (Appendix E) and the personalized regular mail survey along with a preaddressed, stamped envelope; one-fourth of the sample was electronically mailed a prenotification message (Appendix D) about the forthcoming survey and then received the electronic survey four days

later accompanied by a personally addressed cover letter; one-fourth of the sample received an electronic mail survey with a personally addressed cover letter (Appendix F); and one-fourth of the sample received an electronic mail survey with a generically addressed cover letter (Appendix G). Table 2 identifies the documents received by each subgroup.

Table 2

## Documents Received by Survey Sample Subgroups

Sample Subgroup	Documents Received
Personalized Regular Mail	Personally Addressed Cover Letter Survey
Prenotification Group	Prenotification Letter Personally Addressed Cover Letter Survey
Personally Addressed Cover Letter	Personally Addressed Cover Letter Survey
Generically Addressed Cover Letter	Generically Addressed Cover Letter Survey

All surveys were sent on the same day, Tuesday, January 21, 1997. This was the second week of the winter term and the day following an official university holiday.

Nonrespondents for each of the three electronic mail variables (prenotification, personalized cover letter, and generically addressed cover letter) were divided into two groups. One group received follow-up six days after the initial survey (January 27, 1997) was sent (Appendices I and J). The follow-up included a



reminder letter encouraging nonrespondents to respond and another copy of the survey. The other group did not receive any follow-up.

All nonrespondents of the personalized regular mail survey were sent a letter encouraging them to respond as well as another copy of the survey (Appendix H). The follow-up took place 10 days after (January 31, 1997) the initial mailing.

Regular mail surveys were coded so as to follow-up with only nonrespondents. The electronic mail package identifies in the header the name of the individual from whom a message is received, therefore it was an easy task to identify the nonrespondents of the electronic mail method of surveying. Confidentiality of responses was assured to all participants.

### Operational Hypotheses

The ten research questions presented in Chapter I have been operationalized in the following hypotheses:

1. There are percentage differences between initial response rates for electronic mail surveys preceded by a prenotification message and electronic mail surveys distributed without prior correspondence with the potential respondents (Dillihunt, 1984).
2. There are percentage differences between initial response rates for electronic mail surveys distributed with a personal salutation and electronic mail surveys distributed with a generic salutation (Rossi et al., 1993).

3. There is an increase in the response rate percentages of electronic mail surveys after one follow-up is conducted (Dillman, 1978).
4. There are no percentage differences in the response rate for electronic mail surveys with follow-up versus those electronic mail surveys with no follow-up (Anderson & Harris, 1995; Opperman, 1995).
5. There are no percentage differences in the response rate of electronic surveys with different types of employees (Komsky, 1991).
6. Initially (prior to any follow-up activities) there are no differences in the percentage of respondents responding by electronic mail and those responding by regular mail (Kiesler & Sproull, 1986).
7. There are no percentage differences between response rate by method of surveying after follow-up measures are employed (regular mail versus electronic mail) (Kiesler & Sproull, 1986).
8. There are differences between the average (mean) amount of time in receipt of the completed survey by method of surveying (regular mail versus electronic mail) (Kiesler & Sproull, 1986).
9. There are differences in the mean number of words used for open-ended questions for respondents of regular mail and electronic mail surveys (Kiesler & Sproull, 1986).

10. There are no differences in the frequency of responses for individual categories for regular mail survey respondents and electronic mail survey respondents (Helgerson & Urick).

### Analysis of Data

A z test of differences in proportions was used to test percentage differences in response rates for each of the independent variables in hypotheses one through seven and ten at an alpha level of .05 (Hopkins, Glass, & Hopkins, 1987). A two-tailed t-test of independent means at an alpha level of .05 was used to measure mean differences in the time it took regular mail survey and electronic mail survey respondents to return the completed surveys to the researcher (hypothesis eight) and mean differences in the length of responses by method of surveying (hypothesis nine) (Hinkle & Wiersma, 1994).

### Limitations

The most limiting factor of this study, as is true with survey research by and large, was the generalizability of the results past the target population. The results of this methodological study, factors affecting responses in electronic mail surveys, are only applicable to university faculty and staff who display similar characteristics to those at WMU, in other words, who have access to electronic mail. University faculty and staff are unique, when compared to the general population and many other

specific populations, in their access to and use of electronic mail. This factor may impede on the generalizability of findings on survey methodology to other groups.

## CHAPTER IV

### FINDINGS

#### Introduction

The primary goal of this study was to explore some of the factors that may be related to the response rate for electronic mail surveys. Another goal was to determine if there were response rate and response time differences between electronic mail and regular mail surveys. This chapter reports the findings which are organized around the eight primary research questions. Two additional secondary questions regarding the quality of responses are also included.

#### Primary Research Questions

##### Question #1

Question #1 states: Are there differences between initial response rates for electronic mail surveys preceded by a prenotification message and electronic mail surveys distributed without prior correspondence with the potential respondents?

As indicated earlier, initial response rate was defined as the time in which completed surveys were received by the researcher prior to any follow-up. One subgroup of the electronic survey sample was sent an electronic mail message three days prior to the distribution of the survey itself. This group was identified as the

prenotification electronic mail survey group. The message described the forthcoming survey and invited their participation in the study (Appendix D). A second subgroup of the electronic survey sample did not receive any type of advance communication. This group was called the personalized electronic mail survey group. Each potential respondent for both groups was sent an identical cover letter personally addressed (addressed by title and last name) and a copy of the survey (Appendix F). The surveys were also sent on the same day.

Of the 131 prenotification group surveys electronically mailed, 48 were completed and returned for a response rate of 36.6% (Table 3). There were 130 surveys distributed to the personalized group. Thirty-eight surveys were completed and returned resulting in a response rate of 29.2%.

Table 3  
Initial Return Rates of Prenotification and Nonprenotification  
Electronic Mail Surveys

Survey Type	Proportion Returned	Percentage Returned
Prenotification	48/131	36.6%
No prenotification	38/130	29.2%

The z test for differences in proportions was used to test the percentage difference of the two response rates. The z test found no statistically significant difference ( $p > .05$ ) between the two response rates. That is, there was no difference in

the initial response rate (before follow-up) for electronic mail surveys where a message was sent to the potential respondents in advance and those surveys where no prior communication with the respondents took place.

## Question #2

Question #2 states: Are there differences between initial response rates for electronic mail surveys distributed with a personal salutation and electronic mail surveys distributed with a generic salutation?

Generic and personalized electronic mail survey groups were electronically sent identical surveys and cover letters (Appendices F and G) with the exception of the salutation. The generic electronic mail survey group's cover letter was addressed "Dear WMU employee" and the personalized electronic mail survey group's cover letter was addressed "Dear title last name" with the employee's proper title, Mr., Ms., or Dr. inserted in the title location followed by their last name.

As was the case for the other research questions, initial response rate was defined as the point before any follow-up activities took place. Depicted in Table 4 are the number of surveys successfully sent out for each electronic mail survey group and the number returned.

Of the 132 generically addressed electronic mail surveys, 30 were returned for a response rate of 22.7%. One hundred thirty (130) personally-addressed electronic mail surveys were distributed with 38 completed and returned for a completion rate of 29.2%.

The z test for differences in proportions indicated that there were no differences ( $p > .05$ ) in initial response rates for electronic mail surveys distributed with a personal salutation (29.2%) and electronic mail surveys distributed with a generic salutation (22.7%).

Table 4  
Initial Return Rates of Generically and Personalized Addressed  
Electronic Mail Surveys

Survey Type	Proportion Returned	Percentage Returned
Generically Addressed	30/132	22.7%
Personally Addressed	38/130	29.2%

### Question #3

Question #3 states: Is there an increase in the response rate of electronic mail surveys after one follow-up is conducted?

The electronic mail survey sample of 393 was split into two approximately equal parts. One part of this split sample received follow-up and the other part did not receive any follow-up. Six days after the initial survey was sent, the nonrespondents of the follow-up group were sent a follow-up reminder letter and another copy of the survey. Before the follow-up was instituted, 70 of the 217



potential electronic mail survey respondents in the follow-up group completed and returned the survey (32.3%). After the follow-up, 111 of the 217 individuals in the sample had completed and returned the survey (51.5%) (Table 5).

Table 5  
Electronic Mail Survey Response Rates Before and After Follow-up

	Proportion Returned	Percentage Returned
Prior to Follow-up	70/217	32.3%
After Follow-up	111/217	51.2%

The z test for differences in proportions was used to test the percentage difference in the response rate before follow-up and after follow-up for the electronic mail survey sample. The z test found that the difference before and after follow-up was statistically significant ( $p < .05$ ). That is, the use of one follow-up increased the response rate from what it was before the follow-up.

In a related analysis, the researcher also examined the initial response rate, before follow-up, and the final response rate for the personalized regular mail survey sample. Prior to any type of follow-up, 74 of the 131 potential respondents in the personalized regular mail survey group had completed and returned the survey (56.5%) (Table 6). All of the nonrespondents of this group received a reminder letter

and an additional copy of the survey. Following the follow-up, an additional 14 individuals responded resulting in a final response rate of 67.2%.

The difference in the response rates before and after follow-up was 10.7%. The z test for differences in proportions indicated that this difference was not statistically significant ( $p > .05$ ).

Table 6  
Regular Mail Survey Response Rates Before and After Follow-up

	Proportion Returned	Percentage Returned
Prior to Follow-up	74/131	56.5%
After Follow-up	88/131	67.2%

#### Question #4

Question #4 states: Is there a difference in the response rate for electronic mail surveys with follow-up six days after the original survey is distributed versus those with no follow-up?

All electronic mail surveys were dispersed on the same day. Six days following the initial mailing, approximately one-half of the nonrespondents of the electronic mail survey were electronically sent a reminder letter along with an additional copy of the survey (Appendices I and J). The remainder of the respondents did not receive any type of follow-up.

Portrayed in Table 7 one can see that there were 111 completed and returned surveys out of a possible 217 in the electronic mail survey group where one follow-up took place. The electronic mail survey group without follow-up had 46 surveys completed and returned from a sample of 176. Nearly twice as many surveys were returned from the follow-up group as compared to the non follow-up group (51.2% versus 26.1%).

The z test for differences in proportions indicated that the difference was statistically significant ( $p < .05$ ).

Table 7  
Comparison of Return Rates of Electronic Mail Surveys  
With and Without Follow-up

	Proportion Returned	Percentage Returned
No Follow-up	46/176	26.1%
One Follow-up	111/217	51.2%

An additional look was taken at the return rates for the three electronic mail subgroups: generically addressed, personalized, and prenotification to see whether there were differences among those three groups with no follow-up versus one follow-up. Table 8 depicts the results. Only the prenotification and personalized electronic mail survey samples had statistically significant differences ( $p < .05$ ) between no follow-up and one follow-up.

Question #5

Question #5 states: Is there a difference in the response rate for electronic mail surveys with different types of employees?

Table 8

Comparison of Return Rates of Electronic Mail Survey Subgroups  
With and Without Follow-up

Electronic Mail Survey Subgroup		
	No Follow-up	One Follow-up
Prenotification	28.8%	60.8%
Personalized	25.4%	57.7%
Generic	24.6%	32.8%

Of the 393 electronic mail surveys successfully distributed initially, 163 (41.5%) were sent to faculty members, 148 (37.7%) were disbursed to professional and administrative staff, and 82 (20.9%) distributed to clerical and technical staff. These proportions were similar to those in the sampling frame received from WMU Computing Services listing all WMU staff possessing electronic mail accounts.

Slightly over 43% of faculty, 36.9% of professional and administrative staff, and 20.9% clerical and technical staff returned the surveys. Table 9 depicts the proportions and percentages from each employee type that returned the survey.

Table 9  
Response of Electronic Mail Surveys by Employee Type

Employee Type	Proportion Returned	Percentage Returned
Faculty	68/163	41.7%
Professional/Administrative	58/148	39.1%
Clerical/Technical	31/82	37.8%

To compare the response rate by employee type, professional/administrative and clerical/technical; professional/administrative and faculty; and clerical/technical and faculty, the z test for differences in proportions was used. The z test found no statistically significant differences ( $p > .05$ ) in the rate of return by employee type.

#### Question #6

Question #6 states: Are there differences between initial response rates by method of surveying?

In order to assess whether differences existed between initial response rates for personalized regular mail and electronic mail surveying, percentages of responses for each type of survey were calculated. Initial response rates for purposes of this study were defined as responses received prior to any type of follow-up activity. Furthermore, since the original survey sent via regular mail and those sent as a part of the follow-up were color coded, the day the new color survey was received in the

mail to the researcher was determined as the cut-off point between those surveys received from the original mailing and those received as a part of the follow-up. This cut-off point was 20 days following the initial mailing. The defining point between electronically mailed surveys received as a part of the initial mailing and those received after the electronic mailing follow-up was the point at which a survey from the follow-up was returned to the researcher.

The response rate was calculated by determining the percentage of successfully mailed (excluding surveys returned because of no longer employed staff and faculty) surveys completed and returned (Babbie, 1990). As depicted in Table 10, 131 surveys were sent by regular mail. Of those 131, 74 were completed and returned to the researcher resulting in an initial response rate of 56.5%. All three subgroups of electronic mail surveys were grouped together to answer this research question. Of those 393, 116 were completed and returned resulting in an initial response rate of 29.5%.

Table 10  
Initial Return Rates of Regular and Electronic Mail Surveys

Survey Type	Proportion Returned	Percentage Returned
Regular Mail	74/131	56.5%
Electronic Mail	116/393	29.5%

A z test for differences in proportions was used to test the percentage difference in the initial response rate for personalized regular mail and electronic mail surveys (all three electronic mail subgroups). The z test indicated that there was a statistically significant difference ( $p < .05$ ) between the initial response rates for the two types of surveys.

#### Question #7

Question #7 states: Are there differences between response rates for electronic mail surveys and regular mail surveys when one follow-up is introduced?

The second research question set out to examine whether there were differences between response rates for personalized regular mail surveys and electronic mail surveys after follow-up. For this study, one follow-up was instituted for each of the two methods of surveying. A reminder letter encouraging nonrespondents to respond (Appendix E) was accompanied by another copy of the survey for regular mail participants. This follow-up took place 10 days after the initial mailing. The nonrespondents of the electronic mail original sample were divided randomly into two groups. One group received a reminder electronic mail message encouraging them to respond along with another electronic version of the survey (Appendices I and J). This follow-up took place six days after the initial mailing. The second group did not receive any type of follow-up.

Again the response rate was calculated as the percentage of successfully distributed surveys that were completed and returned to the researcher. Of the 131

surveys sent via regular mail, 88 were returned for a response rate of 67.2%. Of the 217 electronic mail surveys (includes all three electronic mail subgroups) where follow-up was incorporated, 111 were returned for a completion rate of 51.2% (Table 11).

Table 11  
Return Rates of Regular and Electronic Mail Surveys After Follow-up

Survey Type	Proportion Returned	Percentage Returned
Personalized Regular Mail	88/131	67.2%
Electronic Mail	111/217	51.2%

A z test for differences in proportions was used to test the differences in the response rates for personalized regular mail and electronic mail surveys (all three electronic mail subgroups). The z test showed that the difference in response rates was statistically significant different ( $p < .05$ ).

The three subgroups of electronic mail surveys methods were grouped together for this analysis. A point of interest is to examine the final response rates for the three subgroups and to compare them individually with each other and the personalized regular mail survey group. Table 12 displays the proportions and percentages of respondents for the electronic mail survey subgroups and the personalized regular mail survey group.



Table 12  
Return Rates of Electronic Mail Survey Subgroups and  
Personalized Regular Mail Survey Group After Follow-up

Survey Type	Proportion Returned	Percentage Returned
Prenotification Electronic Mail	48/79	60.8%
Personalized Electronic Mail	41/71	57.7%
Generic Electronic Mail	22/67	32.8%
Personalized Regular Mail	88/131	67.2%

As illustrated in the table for the electronic mail surveys, when a prenotification letter was sent in advance of the survey and one follow-up was implemented, the result was 48 responses of a possible 79 giving a response rate of 60.8%. For electronic mail surveys that were sent with a personalized message for both the initial and follow-up mailings, 41 of a possible 71 responses were received garnering a response rate of 57.7%. Generically addressed electronic mail messages sent along with a survey for both the initial and follow-up mailings had the lowest overall response rate. Of the 67 potential responses, 22 were received for a final response rate of 32.8%.

The z test for differences in proportions was used to test whether any of these response rates were statistically different from the response rate of the personalized regular mail survey (67.2%). Through the analysis it was found there are no

statistically significant differences ( $p > .05$ ) between final response rates of personalized regular mail surveys (67.2%) and the personalized electronic mail survey subgroup (57.7%). Also, there were no statistically significant differences ( $p > .05$ ) between final response rates of personalized regular mail surveys (67.2%) and the prenotification electronic mail survey subgroup (60.8%). There were, however, statistically significant differences ( $p > .05$ ) between final response rates of personalized regular mail surveys (67.2%) and the generic electronic mail survey subgroup (32.8%).

#### Question #8

Question #8 states: Are there differences between the time in receipt of the completed survey by method of surveying?

Both types of surveys, regular mail and electronic mail, were sent on the same day. Many of the electronic surveys were completed and returned to the researcher the same day as they were sent. However, the first returned regular mail surveys were not received by the researcher until January 30, nine days after they were initially sent. A record of the number of surveys by method of surveying was maintained for each day. From this log, the number of days elapsing for each returned survey was calculated. Based on the total number of surveys received for each of the two methods of surveying and the number of days elapsing, the mean time to return the surveys was computed. Six surveys that were sent to respondents electronically and returned via postal mail were excluded from this analysis. The

mean number of days it took for an electronic mail survey to be returned was 3.05 days and the mean number of days for a regular mail survey to be returned was 14.68. A t-test for independent means indicated that the difference was statistically significant ( $p < .05$ ).

The median value for the number of days to return regular mail surveys was 13 (Table 13). As stated above, the first completed surveys arrived by regular mail nine days after the initial mailing. Surveys continued to arrive back to the researcher over the next seven weeks with the last survey received 49 days after the initial mailing. The majority of the surveys arrived 10 days after the initial mailing.

Electronic mail surveys arrived back to the researcher much faster than regular mail surveys. Forty percent of the returned electronic mail surveys arrived back on the same day they were sent. Twenty percent arrived on the sixth day after the initial mailing which was also the same day as the follow-up. The last survey

Table 13  
Central Tendency Values for Response Time\* by Survey Type

	Central Tendency Measures		
	Mean	Median	Mode
Regular Mail	14.68	13	10
Electronic Mail	3.05	2	0

\*Time is measured in days

received by electronic mail was returned slightly over two weeks following the initial mailing (15 days). The median value for the return of electronic mail surveys was two and the modal value was zero.

The cumulative frequency chart in Figure 1 graphically compares response times between regular mail and electronic mail surveys. The number of days to return electronic surveys was bimodal. The majority of the surveys were returned on the same day they were sent with another large peak of surveys sent back to the researcher six days after the initial mailing. Between the first and sixth days, responses dropped off considerably and even more so after the sixth day.

The regular mail survey frequency distribution is also bimodal. Over 35% of the returned surveys were received by the researcher 10 days after the initial mailing. Another 30% were received 13 days after the initial mailing. Thus, nearly two-thirds of the surveys returned by regular mail were received prior to receipt of the first follow-up.

The main focus of this study was on factors influencing the response rate of electronic mail surveys and a comparison of the response rate of electronic mail surveys and personalized regular mail surveys. In addition, two secondary questions regarding the quality of responses were explored.

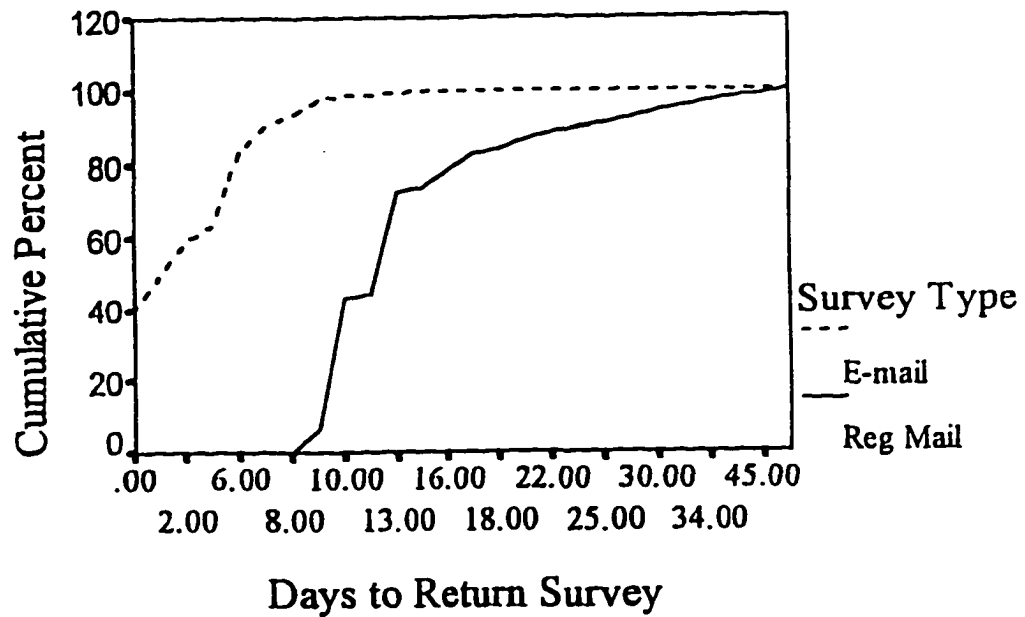


Figure 1. Comparison of Response Times of Regular and Electronic Mail Surveys.

### Secondary Research Question Findings

#### Question #9

Question #9 states: Is there a difference in the length of response for open-ended questions for respondents of regular mail and electronic mail surveys? Two open-ended questions, numbers seven and eight, were selected to answer this research question (Appendices B and C). For each survey type and each question, the total number of words used was divided by the number of persons who responded to the question, yielding the mean length of response, as measured in words. A t-test of independent means was used to determine whether the differences between the means were significantly different by survey type.

Survey question number seven asked the respondents the following question. "If you engage in moderate physical activity at least 1-2 times per week, describe the

reasons you are physically active. If you almost never engage in moderate physical activity, describe the reasons physical activity is not a part of your lifestyle.” Table 14 depicts the means and standard deviations for survey question number seven by method of surveying.

Table 14  
Analysis of Differences in Mean Number of Words by  
Survey Type for Survey Question #7

Survey Type	Mean	<u>SD</u>	<u>t</u> value	<u>df</u>	2-tailed probability
Regular Mail	8.57	7.03	-6.69	192.33	0.00
Electronic Mail	21.40	20.83			

The mean length of responses to question number seven for regular mail respondents was 8.57 words with a standard deviation of 7.03. Electronic mail survey respondents used an average of 21.40 words to respond to the question with a standard deviation of 20.83. A t-test for independent means found the difference between the two means to be statistically significant ( $p < .05$ ).

Survey question eight asked participants, “What are or have been the barriers you experienced when incorporating physical activity into your lifestyle?” Again, as shown in Table 15, electronic mail survey respondents used more words to respond to the question than did regular mail respondents.

Table 15

Analysis of Differences in Mean Number of Words by  
Survey Type for Survey Question #8

Survey Type	Mean	<u>SD</u>	t value	<u>df</u>	2-tailed probability
Regular Mail	8.43	12.25	-3.52	209.59	0.00
Electronic Mail	15.05	16.20			

Electronic mail participants responded with an average of 15.05 words and a standard deviation of 16.20. Regular mail survey participants used 8.43 words with a standard deviation of 12.25. The t-test of independent means indicated that the difference was statistically significant ( $p < .05$ ).

#### Question #10

Secondary Research Question #10 states: Is there a difference in the nature of responses for regular mail survey and electronic mail survey respondents?

Survey questions one through five (Appendices B and C) were analyzed to answer this exploratory research question. These five questions were selected because they represented a set of questions where respondents self-reported health belief information about themselves. The majority of the other types of closed-ended questions on the survey were informational in nature regarding the use of certain Zest for Life activities and resources. For each of the five health beliefs questions, respondents were to rate themselves on a Likert type scale of one to five, with the

numbers representing some adjective describing an individual's perception as it related to the specific question.

The frequencies for each categorical response were calculated for the regular mail survey respondents as well as the electronic mail survey respondents. The z test for differences in proportions was used to test the percentage differences in the responses for each categorical response for the regular mail and electronic mail survey respondents. Tables 16-20 depict the frequencies for each category by question number.

The only statistically significant results were found in the excellent-average and average categories ( $p < .05$ ) (Table 16). A higher percentage of electronic mail survey respondents rated themselves as perceiving their general health when compared to others as excellent-average and less likely as average. The opposite was true of regular mail survey respondents. A higher percentage of regular mail survey respondents rated themselves as perceiving their general health when compared to others as average and less likely as excellent-average. For none of the other four items were there response pattern differences between the regular and electronic mail groups.

In summary, Chapter IV detailed the analysis and findings for the study as they related to each of the eight primary and two secondary research questions. Chapter V will provide a discussion of those findings. The final chapter of the study will also provide recommendations for future study of factors affecting response rates of electronic mail surveys.



Table 16

Frequency Responses for Survey Question Number One  
 “When Comparing Yourself to Other People Your Age,  
 How do You Perceive Your General Health?”

Response	Survey Type	
	Regular Mail (n=88)	Electronic Mail (n=156)
Excellent	26.1%	18.6%
Excellent-Average	29.5%	47.4%
Average	42.0%	28.8%
Average-Poor	2.3%	4.5%
Poor	0.0%	0.6%

Table 17

Frequency Responses for Survey Question Number Two  
 “How Successful Do You Think You are  
 in Taking Care of Your Health?”

Response	Survey Type	
	Regular Mail (n=88)	Electronic Mail (n=157)
Excellent	11.4%	10.2%
Excellent-Average	42.0%	49.7%
Average	37.5%	35.7%
Average-Poor	8.0%	3.8%
Poor	1.1%	0.6%

Table 18

Frequency Responses for Survey Question Number Three  
 “How Much Control Do You Think You Have Over  
 Your Current and Future Health?”

Survey Type		
Response	Regular Mail (n=88)	Electronic Mail (n=155)
Great Amount	22.7%	27.1%
Great – Moderate Amount	48.9%	38.1%
Moderate Amount	22.7%	28.4%
Moderate – Hardly Any	4.5%	3.9%
Hardly Any	1.1%	2.6%

Table 19

Frequency Responses for Survey Question Number Four  
 “How Often Does Stress Interfere with Your Health,  
 Personal Happiness, or Productivity at Work?”

Response	Survey Type	
	Regular Mail (n=88)	Electronic Mail (n=155)
Daily	18.2%	15.5%
Daily – 3-4 Days/Week	17.0%	16.8%
3-4 Days/Week	30.7%	20.6%
3-4 Days/Week – Never	30.7%	40.6%
Never	3.4%	6.5%

;

Table 20

Frequency Responses for Survey Question Number Five  
 “How Important Do You View Regular Physical Activity  
 as an Essential Component of Good Health?”

Response	Survey Type	
	Regular Mail (n=87)	Electronic Mail (n=157)
Extremely Important	51.7%	57.3%
Extremely Imp – Moderate	29.9%	26.8%
Moderate	16.1%	14.0%
Moderate – Not Important	0.0%	1.3%
Not Important	2.3%	0.6%

## CHAPTER V

### DISCUSSION

#### Introduction

This study examined some of the factors influencing the response rate of electronic mail surveys. The other component of the study compared time to respond for regular mail versus electronic mail surveys. Secondly the study examined the quality of the responses by the two methods of surveying, electronic mail and regular mail.

Chapter V begins with a discussion of the pertinent findings from the previous chapter. Included in this section is a discussion of factors to consider when deciding to conduct an electronic mail survey versus a regular mail survey. Following the discussion is a section on the limitations and caveats of the study. The relationship between the findings of this study and the existing literature base are also discussed. This chapter also provides suggestions for further study on factors influencing response rate of electronic mail surveys

## Discussion of Findings

### Primary and Secondary Research Questions

There were several major findings that emerged from the analysis of the data. Follow-up played a critical part in increasing the response rate of the electronic mail surveys. Prior to follow-up, about one-third (32.3%) of the respondents had completed and returned the survey. After the follow-up, just over one half (51.2%) of the surveys were completed and returned. In this study, the effects of follow-up on regular mail surveys were not what would be expected based on previous research (Heberlein & Baumgartner, 1978). Most of the regular mail surveys were returned before the follow-up (56.5%). After follow-up the response rate was 67.2%, a nonsignificant increase of less than 11%. Heberlein & Baumgartner (1978), in their meta-analysis of factors affecting survey response rates on mailed surveys, found that one follow-up produced an average increase in the initial response rate of 20%.

When comparing the response rates of electronic mail surveys where there was no follow-up and those where there was follow-up, one can see the immense influence follow-up has on response rates. For the subsample of the electronic mail sample that did not receive follow-up, about one fourth (26.1%) of the sample responded. Nearly twice as many (51.2%) of the electronic mail sample that received a follow-up responded.

The effects of prenotification and personalization were evident in the context of follow-up, but not when there was not follow-up. Without follow-up there was not

a difference in the return rates of the three subgroups: prenotification, personalized, and generic. When there was follow-up there was a difference in the response rates of the prenotification and personalized subgroups as compared to the generic subgroup. The prenotification follow-up group had a response rate of 60.8%, over twice as many as the non follow-up group who had a response rate of 28.8%. Similarly, the personalized follow-up group had a response rate of 57.7% while the personalized non follow-up group only had a response rate of 25.4%. There was not a difference between the response rates of the generic follow-up group (32.8%) and the generic non follow-up group (24.6%).

It appears from the results of this study that the variable most influencing the response rate is follow-up. Coupling follow-up with sending out an electronic mail message in advance of the survey notifying and briefly explaining the forthcoming survey and personalizing the cover letter garnered the best response rate.

Upon comparison of the personalized regular mail and electronic mail survey response rates (all three electronic mail subgroups), personalized regular mail surveys prevailed in terms of capturing a higher response rate. Before any type of follow-up, the personalized regular mail surveys had a response rate of nearly 57%. This exceeded the electronic mail survey response rate by over 25% as the initial response rate of the electronic mail surveys was only 30%.

After one follow-up, the electronic mail survey response rate rose by over 20% to a final response rate of 51.2%. The personalized regular mail survey yielded a final response rate of 67.2% after one follow-up. The differences between the final



response rates for the personalized regular mail and electronic mail surveys (all three electronic mail subgroups) were also statistically significant ( $p < .05$ ).

However, when the final response rates of the electronic mail sample subgroups were analyzed and compared to the personalized regular mail survey, there were not differences between two of the subgroups and the personalized regular mail group. The prenotification electronic mail survey sample group had a response rate of 60.8% after one follow-up. Similarly, the personalized electronic mail survey sample group had a response rate of 57.7% after one follow-up. The differences between the response rates of the prenotification and personalized electronic mail survey sample groups and the personalized regular mail survey group were not statistically significant. There were not differences between the final responses rates of the personalized regular mail, prenotification electronic mail, and personalization electronic mail survey samples. The generic electronic mail survey sample group had the lowest response rate (32.8%). The difference between the response rate of this group and the personalized regular mail survey group was statistically significant. That is, there was a difference between the final response rates of the personalized regular mail and generic electronic mail survey samples.

Electronic mail surveys prevailed over the regular mail surveys in terms of time of receipt for completed surveys. The majority of the electronic mail surveys that were returned were sent back to the researcher on the very same day they were distributed. The first regular mail survey was not returned back to the researcher until nine days later. About three-fourths of the regular mail surveys were received by the

researcher 13 days after the initial mailing. In comparison, three-fourths of the electronic mail surveys were received within six days.

The return of the electronic mail surveys dropped off considerably by the fourth day after the survey had been distributed. The return rate peaked again after the follow-up occurred on the sixth day. About 60% of the electronic mail surveys returned took place on the initial day the survey was administered and on the day the follow-up was sent out. This finding suggests that the time for follow-up should be shortened to a period of less than four days. Regular mail surveying also requires two to three days for delivery and receipt of surveys. Due to the immediacy of electronic mail one does not have that wait time. Both the immediacy factor and the return rate drop-off found in this study provide a rationale for shortening the time between follow-up for electronic mail surveys.

Even though a date for completion (10 days after the surveys were initially sent) of the survey was provided in the cover letter, regular mail surveys continued to trickle in for seven weeks -- over five weeks after the stated deadline. The electronic mail part of the study was completed in about two weeks. The last survey arrived 15 days after the initial distribution.

In summary, if time is a crucial issue in collecting data, electronic mail surveys have a distinct advantage. Also, as discussed above, prenotification and personally addressing the cover letters of electronic mail surveys and follow-up can help in achieving a response that is not different to that of personalized regular mail surveys.

The discussion above centered upon the findings of the study as they related to response rates and the time needed to respond. The two exploratory questions revolved around differences in the responses themselves between the two methods of surveying -- electronic mail and regular mail.

Two open-ended questions on the survey were examined to determine if there were differences in the length of responses to each of the questions by survey type. The analysis revealed that electronic mail survey respondents were more likely to respond in greater detail and with more words than were regular mail survey respondents. For survey question number seven, the electronic mail survey respondents used more than twice as many words in their responses (21.40 vs. 8.57 words) as the regular mail survey respondents. Responses to survey question number eight were also nearly twice as long for the electronic mail survey respondents (15.05 words vs. 8.43 words). These findings imply that if one is interested in receiving more complete and descriptive responses to open-ended questions, electronic mail surveys have the advantage.

The second analysis of the responses entailed examining if there were differences in the way respondents of the electronic mail and regular mail surveys responded to closed-ended questions. Five subjective questions on health beliefs were used for this analysis. Response patterns were quite similar across regular and electronic mail survey respondents. No differences were found in the frequencies of responses to each of the five categories for the two surveys for four of the five questions analyzed. That is, there were no differences in how regular mail and

electronic mail survey participants responded to the survey. The only difference ( $p < .05$ ) was found for the excellent-average and average categories for one of the questions. A higher percentage of electronic mail survey respondents rated themselves as excellent-average and less likely as average on that question. The opposite was true of regular mail survey respondents.

### Survey Method Considerations

A high response rate is critical to any study as one tries to generalize the results of the sample surveyed to the population. Without a high response rate, it becomes difficult to place a high degree of confidence on how representative the responses are of the population that was sampled.

The decisions to use one method of surveying over another should not be based solely on anticipated response rate. Researchers also need to take other factors into consideration when determining the type of survey to use. A researcher must make some sort of cost-benefit analysis based on what she knows about the population to be surveyed and on the time, money, and skills that are available (Francis, Frey, & Harty, 1979). Electronic mail surveys appear to be the most cost effective type of surveying since there are virtually no outside costs associated such as postage, envelopes, paper, labels, and duplicating charges. For example, the cost of conducting the regular mail portion of this study was nearly \$300 (Table 21).

Monetary expenses are one type of cost associated with surveys. Labor costs are a second expense which need to be taken into consideration when deciding which

method would be most beneficial to use. Initially, regular mail surveys require some time to key the names and addresses of the sample into a database. Then cover letters

Table 21  
Costs Incurred With Regular Mail Survey

Item	Dollar Value
Postage	159.00
Envelopes	5.00
Mailing Labels	15.00
Survey Duplicating	112.00
Total	291.00

and mailing labels must be printed. Additional labor is required in preparing the mailing (e.g. stuffing envelopes and adhering stamps). Electronic mail surveys require the researcher to individually address each electronic mail message. Upon receipt of a completed regular mail survey, the researcher must input the closed-ended responses into some statistical software package and key in the responses to the open-ended questions. Upon receipt of a completed electronic mail survey, the researcher can print out a copy of the survey and then key the responses to the closed-ended responses into a statistical software package. Open-ended responses do not need to be rekeyed. The researcher can simply use the copy command from the

electronic mail package and copy the response into a word processing software package.

Table 22 delineates the steps involved and the costs in terms of time for conducting the regular mail survey. When examining the table, one must remember these figures are for the time it took to conduct the survey with a sample size of 131 and 88 respondents.

Table 23 displays the breakdown of the tasks involved in conducting the electronic mail survey and the time required to complete each of those tasks. These time values are based on a sample size of 132 and 56 respondents.

The electronic mail survey was constructed and then saved in a word processing file. The cover letter was also composed and saved in the same file as the survey. Each of the electronic mail messages to sample members had to be individually typed into the address header of the electronic mail message. At the subject header was inserted the word "Survey" to designate the nature of the message. The researcher then pasted the cover letter and survey that had been copied from the word processing file into the body of the message. A place was left for the manual insertion of the title and last name of the individual to which the message was being sent. Each of the 132 personally addressed electronic surveys was sent in exactly the same manner. The distribution of these surveys required an hour of the researcher's time.

Half of the nonrespondents in this group received a follow-up message and another copy of the survey. The same process was applied to the follow-up as was

Table 22  
Steps and Time Costs for Conducting Regular Mail Surveys

Survey Steps	Time Costs
Typing names and addresses in database	2 hours
Setting up and printing mailing labels	.25 hours
Setting up and printing cover letters	.25 hours
Signing covers letters	.5 hours
Adhering labels and postage	2 hours
Stuffing envelopes	2 hours
Setting up and printing follow-up letters	.25 hours
Signing follow-up letters	.25 hours
Adhering labels and postage (follow-up)	.5 hours
Stuffing follow-up envelopes	.5 hours
Opening returned surveys	.35 hours
Keying results into SPSS	4 hours
Keying open-ended responses into word processing software package	2 hours
Total	13.35 hours

described above. This task required approximately 20 minutes. All completed and returned electronic mail surveys were saved in a specially created mail folder. Each of the 56 completed surveys was copied and pasted (using the computer) into a word

processing file. The word processing file was printed out in its entirety and individual surveys clipped together so that they could be individually analyzed. These two tasks required another 20 minutes of time. Two and one half hours were spent keying the quantitative portion of the survey into the Statistical Package for the Social Sciences (SPSS). Open-ended responses were already embedded in the word processing file which contained the results of the entire survey for each respondent. Using the copying and pasting computer commands, the open-ended responses from each respondent were organized by question number. Two hours of the researcher's time were consumed with this activity.

Slightly over six hours (6.1) were required to conduct the personalized portion of the electronic mail survey as compared to the 13.35 hours to conduct the regular mail survey. The same number of surveys (132) was distributed for each group, however, the number of responses for the regular mail survey was 88 versus 56 for the electronic mail survey. Even so, the regular mail survey required over twice as much time. Also, one needs to be mindful that the electronic mail surveys tended to have much longer responses to the open-ended questions.

### Summary of Findings

Based on the findings of this study, there are certain conditions under which electronic mail surveying may be the most appropriate method of data collection. Certainly if one is interested in collecting data or information from a group of individuals in a short period of time, electronic mail surveying is an ideal survey



Table 23  
Steps and Time Costs for Conducting Electronic Mail Surveys\*

Survey Steps	Time Costs
Individually addressing each electronic mail message and pasting cover letter and survey into message	1 hours
Sending out follow-up message and survey to half the sample	.3 hours
Copying electronic mail survey responses into word processing software package	.3 hours
Keying results into SPSS	2.5 hours
Compiling open-ended responses into word processing software package	2 hours
Total	6.1 hours

\*Personalized electronic mail survey subsample was selected for portrayal as the comparison measure to regular mail survey group as this subgroup most parallels the regular mail survey.

method. Unlike regular mail surveys, electronic mail surveys are not constrained by the hours of operation of the postal system. Electronic mail surveys may be sent, received, and read at any time of the day or day of the week.

An additional benefit of electronic mail surveying has to do with the costs of conducting the study. For electronic mail users who are a part of a network such as is the case in the university setting, there are no costs associated with sending the survey. Costs savings occur with electronic mail surveys both in the distribution of

the survey and in the materials needed to conduct the survey (envelopes, labels, surveys).

However, certain considerations must be attended to when deciding to use an electronic mail survey. They include the population one is interested in studying. The population of interest for a survey that is to be conducted by electronic mail should not only have access to electronic mail, but also use it on a regular basis. Not all individuals have access to electronic mail. Therefore, when selecting a sample from the population of study one needs to be cognizant of that factor as well as mindful of that fact when attempting to generalize the findings back to the target population.

A second consideration is the issue of lack of anonymity. Most electronic mail packages include an individual's electronic mail address along with the response. This eliminates anonymity of the individual responding. Therefore, it is suggested that the survey content be of such that it is nonthreatening to the respondent.

The final consideration has to do with the type of survey that is to be conducted. Electronic mail tends to be a text-only based method of communication. Pictures and graphical information are very difficult to display. Surveys that consist of simple closed-ended and open-ended type of questions are the most conducive for electronic mail surveys.

Finally, the results of this study found that the use of open-ended questions produced more desirable responses, as compared to regular mail surveys, in terms of

the length of the responses as well as more descriptive responses. Also, differences did not exist between the responses to the closed-ended questions for the respondents by the two methods of surveying. Therefore, in instances when more qualitative type survey responses are needed, the electronic mail surveying appears to have the advantage.

### Limitations

The findings presented here are tempered by three limitations associated with this study. These include the sample, content of the survey, and sample sizes. By limiting the sample to selected Western Michigan University staff possessing electronic mail accounts and the population to the University staff, the ability to generalize the results to all electronic mail users was limited. Demographically, the sample selected was very well representative of the population. However, electronic mail users in other populations and settings may have different response rates than those found in this study. Therefore, readers are cautioned in generalizing the results to other populations.

Health beliefs and practices formed the basis for the content of the survey. Due to the personal nature of some of the questions, a few individuals in the electronic mail sample opted not to complete the questionnaire. Through an electronic mail message to the researcher they expressed their concerns about the lack of confidentiality of electronic mail. This suggests that not all individuals place complete trust in electronic mail systems. Six respondents of the electronic mail

survey used regular postal mail to return the survey. An alternative survey content, perhaps one of not such a personal nature, may have influenced the response rate differently.

The final limitation relates to the sample sizes. A sample size of 532 (128 for each of the four subgroups: personalized regular mail survey; prenotification electronic mail survey; personalized electronic mail survey; and generic electronic mail survey), an adequate sample size to limit sampling variability to the desired alpha level of .05, was selected for this investigation. However, some of the research questions dealt with examining subgroups less than a size of 128. These small cell sizes were problematic in that there was a significant reduction in power, thus less chance of finding a statistically significant difference.

#### Integration of Study Findings Into the Literature

To reiterate, one piece of this study focused on comparing the response rates between regular and electronic mail surveys, building upon the minuscule amount of research in this area. In summary, the traditional personalized regular mail survey garnered a higher response rate than the electronic version of the survey. This finding aligns with what has been found in other studies exploring this same research question (Kiesler & Sproull, 1986; Raefeli, 1986; Schuldt & Totten, 1994). However, when there was precorrespondence with the electronic mail sample as well as follow-up with nonrespondents, the response rate was not different to that obtained with the personalized regular mail sample.

The electronic mail survey method was superior to the regular mail method in terms of the time it took the respondents to return the completed surveys. For research studies or other activities where quick feedback is of utmost importance, the electronic mail survey method is advantageous. Electronic mail surveying is relatively inexpensive, too. Measured against the regular mail survey, the electronic mail survey was less costly to complete both in monetary terms and time involvement.

A second focus of this inquiry was on the differences, if any, between the responses of the two methods of surveying. Alluded to in Chapter II was the need for more research in this arena. Kiesler & Sproull (1986) claimed more research was warranted before paper and electronic surveys could be used interchangeably. Results of this study supported previous findings of no differences between the way the respondents responded to the closed-ended questions (Rosenfeld, et al., 1993; Helgerson & Urick, 1989). However, with open-ended questions, electronic mail survey respondents tended to answer with more descriptive responses, ones that were twice as long as the regular mail respondents. Regular mail survey respondents generally answered the open-ended with two or three word phrases. Electronic mail survey respondents tended to respond in two to three complete sentences. Often times these respondents provided a considerable amount of detail and shared more personal information about themselves

Another key focus of the study was on the factors that contribute to a higher response rate for electronic mail surveys, an area not previously explored. Follow-up

appears to be the factor that most contributed to an increased response rate. This is consistent with what is true with what is known about regular mail surveys.

Heberlein & Baumgartner (1978) in a meta-analytic study of factors affecting response rates to mailed questionnaires discovered follow-up to be the key factor.

For the electronic mail survey sample where there was precorrespondence with potential respondents, a higher response rate was received than those with which there was not any type of advanced communication. In a comparison of the electronic mail survey sample where the message was personally addressed and the sample with a generically addressed message, the personally addressed sample had the highest response rate. These findings suggest that to achieve the maximum response rate for electronic mail surveys, use precorrespondence, personally address the electronic mail survey, and implement follow-up.

#### Suggestions for Further Study

As a result of this study, there are seven areas the researcher thinks would be of value to study in the pursuit of advancing the knowledge in what is known about electronic mail surveying and factors influencing the response rate. The first two are related to follow-up. From the analyses of the results of this study, follow-up appears to be the variable influencing the response rate of electronic mail surveys to the greatest extent. This variable has also been found to be the most influential factor influencing the response rate of regular mail surveys (Heberlein & Baumgartner,

1978). It would be of interest to extend the study and to determine the minimum number of follow-ups that are necessary to achieve the greatest response rate.

Second, follow-up for this study was six days after the initial survey was sent. This time was selected for follow-up because it was the point at which the responses had dropped off considerably. It would be of value to determine if this is the most effective timing for follow-up. One might want to know what the results would have been if the time between follow-up was varied, both in terms of less time and more time.

The survey content may have also swayed the response rate. The content for this survey was based on health beliefs and current health practices of the respondents. To some individuals the content may have been too much of a personal nature and hence lowered the response rate. Even though they were guaranteed confidentiality in their responses, several individuals in the sample sent the researcher a message declaring they did not wish to participate in the survey due to the lack of confidentiality of electronic mail systems and the belief that employers may read their mail. Another aspect to investigate is whether the response rate would have changed had the content of the survey been a neutral topic or that of a nonpersonal nature.

This survey consisted of 21 questions, 18 closed-ended questions and 3 open-ended, requiring approximately 10 minutes of participants' time to complete. One could vary the number of questions and types of questions to determine if length of survey is an important factor in effecting the response rate for electronic mail surveys.

Rewarding people for completing surveys is a technique sometimes used to encourage people to respond to the instrument. In regular mail surveys, rewards are often sent to potential respondents up front in the hopes that they will persuade individuals to complete the survey. In the case of electronic mail surveys, the researcher could promise the respondent some form of incentive upon completion of the survey. Of course, with the use of any type of incentive, the cost of the survey will increase as well. Another study could do a cost benefit analysis of the response rate with the use of incentives added to the design of the study.

One of the limitations of the study that was cited earlier was the population to which the results of the study may be generalized. This University population has had an electronic mail system for several years and most employees have become accustomed to using electronic mail as a part of their daily or weekly routine. Other studies should be conducted with other populations to determine if the response rates attained through this study are similar to what one would expect with other populations.

The cover letter and survey were both embedded as a part of the potential respondent's electronic mail message. A similar study could be conducted using the World Wide Web (WWW). Messages could be sent to each potential respondent explaining the survey and indicating the WWW address where the respondent could go to complete the survey. Again, one could compare the response rates for surveys that were embedded as a part of an electronic mail message and those that were placed on the WWW.



### Concluding Remarks

Electronic mail surveys have undergone mammoth changes since this study began nearly two years ago. Internet surveys are now being conducted on the WWW. The WWW enables the user to create a survey that is formatted in such a way that it more closely resembles a paper survey. Radio buttons allow the respondents to point and click on responses for closed-ended questions. It is possible that the marked improvement in appearance may impact the response rate.

Surveys constructed on the WWW can also be fashioned in such a way that respondents are not able to submit the instrument until all information has been completed properly. This would curtail surveys filled out improperly or incompletely -- something that is not controllable by either regular mail or electronic mail surveys.

Additionally, surveys conducted on the WWW can be set-up so that responses are directly placed into a database and results available virtually immediately after submitting the completed survey. Results may then be made accessible to both the researcher and/or the respondent directly. The guarantee of instantaneous feedback may be a motivating factor in completing the survey. The advances that have been made in the electronic collection of data warrant further study on the methodology of electronic surveys.

In conclusion, the findings from this study provide additional information to the research base of what is known about one way to collect survey data electronically. The findings validate that electronic mail surveying can be used as an

alternative approach to surveying individuals and as a method for data collection.

Responses tended to be equivalent for electronic mail and regular mail survey respondents on the closed-ended questions. On the open-ended questions, electronic mail respondents seemed more willing to provide longer and more complete responses. This finding makes electronic mail surveys particularly attractive in most circumstances.

It also illustrates that there are certain techniques which can be used to facilitate a higher response rate. Pre correspondence to the respondent, personalizing the communication, and using follow-up enabled the researcher in this study to obtain response rates not unlike those of personalized regular mail surveys. However, when conducting any type of survey one should always be mindful of the pertinent characteristics of the research context as well as the advantages and disadvantages of each particular survey method before selecting one method over another.

## **Appendix A**

### **Human Subjects Institutional Review Board Approval**



## WESTERN MICHIGAN UNIVERSITY

Date: 14 May 1997

To: James Sanders, Principal Investigator  
Kimberly Post-Good, Student Investigator

From: Richard Wright, Chair

Re: HSIRB Project Number 96-12-18

This letter will serve as confirmation that your research project entitled "A Comparison of Two Types of Survey Methodology Electronic Mail and Regular Mail" has been approved by the Human Subjects Institutional Review Board based on the conditions set forth in a letter dated 23 April 1997 from Ms. Post-Good's dissertation committee. The conditions and duration of this approval are specified in the Policies of Western Michigan University. You may now begin to implement the research as described in the application.

Please note that you may only conduct this research exactly in the form it was approved. You must seek specific board approval for any changes in this project. You must also seek reapproval if the project extends beyond the termination date noted below. In addition if there are any unanticipated adverse reactions or unanticipated events associated with the conduct of this research, you should immediately suspend the project and contact the Chair of the HSIRB for consultation.

The Board wishes you success in the pursuit of your research goals.

Approval Termination: 1 February 1997

## **Appendix B**

### **Regular Mail Version of WMU Employee Health Beliefs Survey**

Code \_\_\_\_\_

**WMU Employee Health Beliefs Survey****Overview:**

The following survey is designed to gather brief information regarding WMU employees' beliefs and choices regarding their health and well being as well as to collect information pertaining to awareness of Zest for Life (employee health promotion) programs services and resources. The responses to these questions will be used to help Zest for Life staff gain a greater understanding of your needs. The survey contains 21 questions and will require approximately 10 minutes to complete. Following each question is a prompt, "ANSWER," for you to place your response. Please answer each question as truthfully as possible. All responses will be kept confidential and the data aggregated so that individuals will not be associated with their responses. When you have completed the survey, please return it in the enclosed postage-paid, self-addressed envelope.

**HEALTH BELIEFS**

1. On a scale of 1-5, with 1 representing excellent and 5 poor, when comparing yourself to other people your age, how do you perceive your general health?

1	2	3	4	5
Excellent		Average		Poor

ANSWER: \_\_\_\_\_

2. On a scale of 1-5 with 1 representing excellent and 5 poor, how successful do you think you are in taking care of your health?

1	2	3	4	5
Excellent		Average		Poor

ANSWER: \_\_\_\_\_

3. On a scale of 1-5 with 1 representing a great deal and 5 hardly any at all, how much control do you think you have over your current and future health?

1	2	3	4	5
Great amount		Moderate amount		Hardly any

ANSWER: \_\_\_\_\_

4. On a scale of 1 to 5 with 1 representing daily and 5 never, how often does stress interfere with your health, personal happiness, or productivity at work?

1	2	3	4	5
Daily	.	3-4 days/week	.	Never

ANSWER: \_\_\_\_\_

5. On a scale of 1-5 with 1 representing extremely important and 5 not important, how important do you view regular physical activity as an essential component of good health?

1	2	3	4	5
Extremely important		Moderate		Not important

ANSWER: \_\_\_\_\_

6. How often do you engage in moderate physical activity for at least 30 minutes using activities such as swimming, jogging, brisk walking, bicycling, playing racquetball, recreational dance, gardening, etc.?

- a. Almost never
- b. 1-2 times per week
- c. 3-5 times per week
- d. 6-7 times per week

ANSWER: \_\_\_\_\_

7. If you engage in moderate physical activity at least 1-2 times per week, describe the reasons you are physically active. If you almost never engage in moderate physical activity, describe the reasons physical activity is not a part of your lifestyle.

ANSWER:

8. What are or have been the barriers you experienced when incorporating physical activity into your lifestyle?

ANSWER:

**ZEST FOR LIFE AWARENESS**

9. Of the following Zest for Life services and resources, please mark with an X all of which you are currently aware.

**FITNESS PROGRAMS**

- \_\_\_\_\_ Fitness Testing
- \_\_\_\_\_ "Total Fitness Aerobics" Program
- \_\_\_\_\_ "Swimming Techniques and Conditioning" Program
- \_\_\_\_\_ "Aqua Fitness" Program
- \_\_\_\_\_ "Expert Express" Program
- \_\_\_\_\_ "Fundamentals of Weight Training" Class
- \_\_\_\_\_ "Stretch and Strengthen for Fitness" Program
- \_\_\_\_\_ "Take Care of Your Back" Program
- \_\_\_\_\_ "Yoga, Stretch, and Tone" Program
- \_\_\_\_\_ "Yoga, Strength, Flexibility, and Tone" Program
- \_\_\_\_\_ "Tai Chi" Program
- \_\_\_\_\_ On-site Massage Therapy

**HEALTH PROMOTION SERVICES AND RESOURCES**

- \_\_\_\_\_ Interactive Health Resource Center
- \_\_\_\_\_ Free Blood Pressure Assessment
- \_\_\_\_\_ Cholesterol Screening and Education
- \_\_\_\_\_ HIV Antibody Testing
- \_\_\_\_\_ Nutrition Counseling with a Dietitian
- \_\_\_\_\_ "Overcoming Overeating" Program
- \_\_\_\_\_ "Cooking for One or Two" Workshop
- \_\_\_\_\_ "Eating the Vegetarian Way" Program
- \_\_\_\_\_ "Understanding and Managing Depression" Workshop
- \_\_\_\_\_ Stress Management Materials
- \_\_\_\_\_ "Increasing Assertiveness and Positive Thinking" Workshop
- \_\_\_\_\_ "Introduction to Meditation" Workshop
- \_\_\_\_\_ Smoking Cessation Materials

10. What additional support services and resources would be of value to you?

**ANSWER:**



11. What format(s) would be most helpful for you in maintaining and enhancing your health?  
(Place an X beside all options that apply)

\_\_\_\_\_ Pamphlets and manuals  
 \_\_\_\_\_ Programs/workshops  
 \_\_\_\_\_ Internet information and resources  
 \_\_\_\_\_ Support Groups  
 \_\_\_\_\_ Video  
 \_\_\_\_\_ Other (describe)

12. The Zest for Life exercise room is open M/W/F 6:00 - 8:00 a.m., M-F 11:30 a.m. - 1:30 p.m., M-Th 3:30 - 6:30 p.m. Do those hours meet your needs?

- a. Yes  
 b. No  
 c. Not sure

ANSWER: \_\_\_\_\_

13. If you responded no to question 12, what hours would meet your needs?

ANSWER:

14. Therapeutic massage is offered at Oakland Gym on Monday and Wednesday evenings between 3:30 and 7:00 p.m. to WMU employees and their families. The appointment options and costs are 30 minutes for \$20.00 and 60 minutes for \$35.00 (gift certificates are available). On a scale of 1-5 with 1 representing extremely willing to take part in this program and 5 not willing to take part, how willing are you to be involved in this program?

1	2	3	4	5
Extremely		Moderately		Not at all

ANSWER: \_\_\_\_\_

**PERSONAL INFORMATION**

15. When was the last time you had your blood pressure checked?

- a. Within the past year
- b. 2 years ago
- c. 3 or more years ago
- d. Never

ANSWER: \_\_\_\_\_

16. When was the last time you had your serum cholesterol checked?

- a. Within the past year
- b. 2 years ago
- c. 3 or more years ago
- d. Never

ANSWER: \_\_\_\_\_

17. Do you currently smoke and/or use tobacco products?

- a. Yes
- b. No

ANSWER: \_\_\_\_\_

18. On the average, how much alcohol do you consume in a week?

- a. None/abstain totally
- b. Less than 1 drink/beer/glass of wine
- c. 1-2 drinks/beers/glasses of wine
- d. 3-7 drinks/beers/glasses of wine
- e. 8-20 drinks/beers/glasses of wine
- f. 21 or more drinks/beers/glasses of wine

ANSWER: \_\_\_\_\_

19. Your gender:

- a. Female
- b. Male

ANSWER: \_\_\_\_\_

20. Your current age:

- a. 18-28
- b. 29-38
- c. 39-48
- d. 49-58
- e. 59 or older

ANSWER: \_\_\_\_\_

21. Your employment classification:

- a. Faculty
- b. Administrative/Professional
- c. Clerical/Technical

ANSWER: \_\_\_\_\_

Please return completed survey in the enclosed postage-paid, self-addressed envelope or mail to:

Kimberly Post-Good  
9865 El Cameno Lane #1N  
Orland Park, IL 60462

Thank you!

## **Appendix C**

### **Electronic Mail Version of WMU Employee Health Beliefs Survey**

## WMU EMPLOYEE HEALTH BELIEFS SURVEY

### Directions:

Please follow the accompanying directions to complete the survey. If you are using the WMU Vax Mail System, following this message, at the EMAIL> prompt, type in the words "reply/extract" (there is no need to type the quotation marks, only what is enclosed within the quotes). A copy of the survey will appear and you will then be able to respond to each question at the prompt "ANSWER." Cursor down to each "ANSWER" prompt and type in your response. Following the completion of the survey, hold down the CTRL key then briefly press the z key (both need to be held simultaneously). This process will send the completed survey back to the researcher.

If you are using a mail system other than the WMU Vax, follow the directions specific to your mail system to reply back to this message with the original survey enclosed. Add your responses at the prompt "ANSWER" so that they are embedded within the survey in the appropriate locations.

### HEALTH BELIEFS

1. On a scale of 1-5, with 1 representing excellent and 5 poor, when comparing yourself to other people your age, how do you perceive your general health?

1	2	3	4	5
Excellent	.	Average	.	Poor

ANSWER:

2. On a scale of 1-5 with 1 representing excellent and 5 poor, how successful do you think you are in taking care of your health?

1	2	3	4	5
Excellent	.	Average	.	Poor

ANSWER:

3. On a scale of 1-5 with 1 representing a great deal and 5 hardly any at all, how much control do you think you have over your current and future health?

1	2	3	4	5
Great amount	.	Moderate amount	.	Hardly any

ANSWER:

4. On a scale of 1 to 5 with 1 representing daily and 5 never, how often does stress interfere with your health, personal happiness, or productivity at work?

1	2	3	4	5
Daily		3-4 Days/Week		Never

ANSWER:

5. On a scale of 1-5 with 1 representing extremely important and 5 not important, how important do you view regular physical activity as an essential component of good health?

1	2	3	4	5
Extremely important		Moderate		Not important

ANSWER:

6. How often do you engage in moderate physical activity for at least 30 minutes using activities such as swimming, jogging, brisk walking, bicycling, playing racquetball, recreational dance, gardening, etc.?

- a. Almost never
- b. 1-2 times per week
- c. 3-5 times per week
- d. 6-7 times per week

ANSWER:

7. If you engage in moderate physical activity at least 1-2 times per week, describe the reasons you are physically active. If you almost never engage in moderate physical activity, describe the reasons physical activity is not a part of your lifestyle.

ANSWER:

8. What are or have been the barriers you experienced when incorporating physical activity into your lifestyle?

ANSWER:

### ZEST FOR LIFE AWARENESS

9. Of the following Zest for Life services and resources, please mark with an X all of which you are currently aware?

#### FITNESS PROGRAMS

- ☐ Fitness Testing
- ☐ "Total Fitness Aerobics" Program
- ☐ "Swimming Techniques and Conditioning" Program
- ☐ "Aqua Fitness" Program
- ☐ "Expert Express" Program
- ☐ "Fundamentals of Weight Training" Class
- ☐ "Stretch and Strengthen for Fitness" Program
- ☐ "Take Care of Your Back" Program
- ☐ "Yoga, Stretch, and Tone" Program
- ☐ "Yoga, Strength, Flexibility, and Tone" Program
- ☐ "Tai Chi" Program
- ☐ On-site Massage Therapy

#### HEALTH PROMOTION SERVICES AND RESOURCES

- ☐ Interactive Health Resource Center
- ☐ Free Blood Pressure Assessment
- ☐ Cholesterol Screening and Education
- ☐ HIV Antibody Testing
- ☐ Nutrition Counseling with a Dietitian
- ☐ "Overcoming Overeating" Program
- ☐ "Cooking for One or Two" Workshop
- ☐ "Eating the Vegetarian Way" Program
- ☐ "Understanding and Managing Depression" Workshop
- ☐ Stress Management Materials
- ☐ "Increasing Assertiveness and Positive Thinking" Workshop
- ☐ "Introduction to Meditation" Workshop
- ☐ Smoking Cessation Materials

10. What additional support services and resources would be of value to you?

ANSWER:

11. What format(s) would be most helpful for you in maintaining and enhancing your health?  
(Place an X beside all options that apply)

- \_\_\_\_\_ Pamphlets and manuals  
 \_\_\_\_\_ Programs/workshops  
 \_\_\_\_\_ Internet information and resources  
 \_\_\_\_\_ Support Groups  
 \_\_\_\_\_ Video  
 \_\_\_\_\_ Other (Describe)

12. The Zest for Life exercise room is open M/W/F 6:00 - 8:00 a.m.,  
M-F 11:30 a.m. - 1:30 p.m., M-Th 3:30 - 6:30 p.m. Do those hours meet your needs?

- a. Yes  
 b. No  
 c. Not sure

ANSWER:

13. If you responded no to question 12, what hours would meet your needs?

ANSWER:

14. Therapeutic massage is offered at Oakland Gym on Monday and Wednesday evenings between 3:30 and 7:00 p.m. to WMU employees and their families. The appointment options and costs are 30 minutes for \$20.00 and 60 minutes for \$35.00 (gift certificates are available). On a scale of 1-5 with 1 representing extremely willing to take part in this program and 5 not willing to take part, how willing are you to be involved in this program?

- |           |   |            |   |            |
|-----------|---|------------|---|------------|
| 1         | 2 | 3          | 4 | 5          |
| Extremely |   | Moderately |   | Not at all |

ANSWER:



**PERSONAL INFORMATION**

15. When was the last time you had your blood pressure checked?

- a. Within the past year
- b. 2 years ago
- c. 3 or more years ago
- d. Never

ANSWER:

16. When was the last time you had your serum cholesterol checked?

- a. Within the past year
- b. 2 years ago
- c. 3 or more years ago
- d. Never

ANSWER:

17. Do you currently smoke and/or use tobacco products?

- a. Yes
- b. No

ANSWER:

18. On the average, how much alcohol do you consume in a week?

- a. None/abstain totally
- b. Less than 1 drink/beer/glass of wine
- c. 1-2 drinks/beers/glasses of wine
- d. 3-7 drinks/beers/glasses of wine
- e. 8-20 drinks/beers/glasses of wine
- f. 21 or more drinks/beers/glasses of wine

ANSWER:

19. Your gender:

- a. Female
- b. Male

ANSWER:

20. Your current age:

- a. 18-28
- b. 29-38
- c. 39-48
- d. 49-58
- e. 59 or older

ANSWER:

21. Your employment classification:

- a. Faculty
- b. Administrative/Professional
- c. Clerical/Technical

ANSWER:

22. Which of the following best describes your use of e-mail?

- a. Daily
- b. Several times a week
- c. 1-2 times per week
- d. Less than once a week
- e. Other \_\_\_\_\_ (describe)

ANSWER:

To send the completed survey (if you are using the WMU Vax Mail System), hold down the CTRL key then briefly press the z key (both need to be held simultaneously).

Thank you!

## **Appendix D**

### **Electronic Mail Prenotification Letter**

January 17, 1997

Dear <title> <last name>:

I am a graduate student in the Department of Educational Leadership at Western Michigan University. As a part of a research study, I am collecting information regarding WMU employees' beliefs and choices in regards to their health and well-being as well as to collect information pertaining to awareness of Zest for Life (employee health promotion) program services and resources.

You have been selected from a listing of WMU faculty and staff to take part in this study. Within the next week you will be receiving a survey via electronic mail that is intended to provide you with the opportunity to contribute to this informative study. I hope you will take a few minutes to complete the survey as soon as you receive it.

If you have any questions or concerns about the study, please feel free to contact me. My number at home is (708) 460-2407 and my number at work is (630) 218-1074. I may also be reached via e-mail ([kimp@ncrel.org](mailto:kimp@ncrel.org)).

Thanks for your help.

Sincerely,

Kimberly Post-Good

**Appendix E**  
**Regular Mail Cover Letter**

January 21, 1997

Dear «Title» «Last\_Name»:

I am a graduate student in the Department of Educational Leadership at Western Michigan University. As a part of a research study, I am collecting information regarding Western Michigan University employees' beliefs and choices in regards to their health and well-being. Selected as a part of a sample to represent the WMU faculty and staff, I hope you will take the time to respond.

The survey has been developed in cooperation and collaboration with Zest for Life staff so that the information obtained can also be used to help them gain a greater understanding of your needs. The survey contains 21 questions and it should take approximately 10 minutes to complete. Participation is voluntary and all responses will be kept confidential. Surveys have been coded for follow-up purposes only. Data will be summarized in a manner that will preclude the identification of individual respondents.

Completion of the survey signifies your consent to participate in the research study. If you have questions about the survey, please call me at work (630) 218-1074 or at home (708) 460-2407.

Please complete the survey by January 31. Your attention to this is greatly appreciated.

Sincerely,

Kimberly Post-Good

## **Appendix F**

### **Personalized and Prenotification Cover Letter**

January 21, 1997

Dear <title> <last name>:

I am a graduate student in the Department of Educational Leadership at Western Michigan University. As a part of a research study, I am collecting information regarding Western Michigan University employees' beliefs and choices in regards to their health and well-being. Selected as a part of a sample to represent the WMU faculty and staff, I hope you will take the time to respond.

The survey has been developed in cooperation and collaboration with Zest for Life staff so that the information obtained can also be used to help them gain a greater understanding of your needs. The survey contains 22 questions and it should take approximately 10 minutes to complete. Please answer each question as truthfully as possible. Participation is voluntary and all responses will be kept confidential. Data will be summarized in a manner that will preclude the identification of individual respondents.

Completion of the survey signifies your consent to participate in the research study. If you have questions about the survey, please call me at work (630) 218-1074 or at home (708) 460-2407.

Please complete the survey by January 31. Your attention to this is greatly appreciated.

Sincerely,

Kimberly Post-Good



**Appendix G**  
**Generically Addressed Cover Letter**

January 21, 1997

Dear Western Michigan University Faculty or Staff Member,

I am a graduate student in the Department of Educational Leadership at Western Michigan University. As a part of a research study, I am collecting information regarding Western Michigan University employees' beliefs and choices in regards to their health and well-being. Selected as a part of a sample to represent the WMU faculty and staff. I hope you will take the time to respond.

The survey has been developed in cooperation and collaboration with Zest for Life staff so that the information obtained can also be used to help them gain a greater understanding of your needs. The survey contains 22 questions and it should take approximately 10 minutes to complete. Please answer each question as truthfully as possible. Participation is voluntary and all responses will be kept confidential. Data will be summarized in a manner that will preclude the identification of individual respondents.

Completion of the survey signifies your consent to participate in the research study. If you have questions about the survey, please call me at work (630) 218-1074 or at home (708) 460-2407.

Please complete the survey by January 31. Your attention to this is greatly appreciated.

Sincerely,

Kimberly Post-Good

ts

**Appendix H**  
**Regular Mail Follow-up Letter**

January 31, 1997

Dear «Title» «LastName»:

Recently I mailed you a survey pertaining to a research study I am conducting about WMU employees' beliefs and choices in regards to their health and well-being. To date I have not yet received your response. Your input is very important to the study.

I have attached another copy of the survey for your convenience. Please take a few minutes to complete it.

If you have questions about the survey, you may call me at work (630) 218-1074 or at home (708) 460-2407. Please complete the survey at your earliest convenience. Your attention to this is greatly appreciated.

Sincerely,

Kimberly Post-Good

## **Appendix I**

### **Personalized and Prenotification Electronic Mail Follow-up Letter**

January 27, 1997

Dear <title> <last name>:

Last week I electronically mailed you a survey pertaining to a research study I am conducting about WMU employees' beliefs and choices in regards to their health and well-being. To date I have not yet received your response. Your input is very important to the study.

I have attached another copy of the survey for your convenience. Please take a few minutes to complete it.

If you have questions about the survey, please call me at work (630) 218-1074 or at home (708) 460-2407. Please complete the survey by January 31. Your attention to this is greatly appreciated.

Sincerely,

Kimberly Post-Good

## **Appendix J**

### **Generically Addressed Electronic Mail Follow-up Letter**

January 27, 1997

Dear Western Michigan University Faculty or Staff Member,

Last week I electronically mailed you a survey pertaining to a research study I am conducting about WMU employees' beliefs and choices in regards to their health and well-being. To date I have not yet received your response. Your input is very important to the study.

I have attached another copy of the survey for your convenience. Please take a few minutes to complete it.

If you have questions about the survey, please call me at work (630) 218-1074 or at home (708) 460-2407. Please complete the survey by January 31. Your attention to this is greatly appreciated.

Sincerely,

Kimberly Post-Good



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