I. INTRODUCTION

Science as an epistemological method finds new challenges to its application at every stage. The survey research method, for instance, is under pressure to innovate in an attempt to increase response rates. Johnson and Owens mention the observation of De Leeuw and de Heer (2002) that a decline in response rates for surveys has been seen in the United States and other countries of the developed world for many years. The importance of response lies in the fact that only adequate or high response can result in a representative sample (Litmun, Julius, 2002). The strength of a good survey is in its sampling procedure, which has to ultimately result in generalisable data. Fortunately, new modes of communication have opened up alternative opportunities for survey research. Among the new modes are the new media, which are considered advantageous for survey research. The interactive feature of the Internet - notably the website and the email- makes it rich enough to be used as a survey tool. Using the Internet as a survey tool demands a re-look at the various aspects of survey methodology: sampling, response rates, costs, questionnaire design, length, and the technical aspects.

Studies focussing on the effectiveness of email as a survey mode go back to the second half of the 1980s. Findings have not been conclusive, and researchers advise that more context-specific and geographic-area specific studies be done to help reach an acceptable conclusion.

The present Study therefore focussed on the effectiveness of this new survey tool- the email- but also considered for study the two old favourites: the postal mail and telephone.

II. REVIEW OF LITERATURE

Review of literature has two important parts:

Conceptual literature and research literature.

**Conceptual literature** deals with relevant theories and models that form a basis for the study. Theories that are considered for the Study are:

- Technological determinism
Social shaping of technology
Technology Acceptance theory
Exchange theory
Media richness theory
Theory of reciprocity
Theories of message reception

The theories deal with technology and the relationship between people and technology. Communication theories like the theories of message reception assume great importance in the areas of mediated communication, especially when it is between strangers as is the case with surveys.

**Research literature** includes a report and analysis of important studies conducted in the field. While survey response rates in general are found to be declining in the US, the problem is especially more so with the email and the postal mail. Studies done in the area of email as survey tool for a large population are mainly inconclusive.

1. Concluding their study ‘From paper-and-pencil to screen-and-keyboard. Towards a methodology for survey research on the Internet’; Witmer, Colman, and Katzman (1999) observed that:
   - Like other self administered surveys, e-mail surveys also may not be particularly sensitive to questionnaire length.
   - Topics of high relevance may produce higher response rates.
   - Offering incentives to participate in e-mail surveys may be critical.

2. The meta analysis, ‘E-mail survey response rates: A review’ by Kim Sheehan, (2001) showed mixed results for respondent pre-notification. While some studies with pre notification got higher response, for others it made no difference, or even got lesser response. However, pre-notification is considered essential by certain researchers.
   - Two variables that are considered important for higher response rates are post-notification and issue salience.
   - The meta analysis showed higher response rates in the early years, and a decline in response rates in the later years, for email surveys.
3. In their study ‘When can I expect an email response? A study of rhythms in email usage’; Joshua R. Tyler, John C. Tang found that respondents (employees of Sun Microsystems and Hewlett-Packard) typically responded quickly to those who were within their workgroup, and to messages from people with whom they normally have quick communication.
   - Reciprocity was found to be an important factor. According to the study, respondents tend to reciprocate in a similar manner to people who they mail to. People who were quick at replying to messages on the email were favoured with quick responses, whereas those who did not respond quickly to an email message were also not sent quick email responses.
   - Sending emails to a new correspondent did create anxiety about the new receiver’s response behaviour.

4. Allen D. Truell and Perry Goss in their 2002 study, ‘Business education leaders compare e-mail and regular mail survey research’ found that:
   - The postal mail survey showed a higher response rate than the email survey. While 36.7% of email responses were usable, all the returned postal questionnaires were usable.
   - Postal mail responses took a significantly longer amount of time (24.2 days) to reach than email responses, which took 12.5 days.

5. In their complicated study, ‘A comparison of mail and e-mail for a survey of employees in U.S. statistical agencies’; Couper, Mick P; Blair, Johnny; and Triplett, Timothy; (1999), found that:
   - Response rate for email was significantly lower than that of the postal mail survey. Data quality was also better with postal mails.
   - The total costs involved in preparing, sending and analysing email questionnaires was not cost effective, considering the poor response rate; even though it was less expensive than postal mail.
   - Email responses were also faster than postal mail responses.
6. Duane P Bachmann, John Elfrink and Gary Vazzana repeated their 1995 study, ‘E-mail and snail mail face off in rematch’, in 1998. Some important findings are as follows:

- There was no significant difference in the results derived from postal and email surveys, which meant that the email survey could substitute the postal mail survey.
- Email cost was again found to be lower and the advantage of time that the email has on the postal mail survey, was reaffirmed in the second Study.
- While email surveys took almost the same time as in 1995, postal mails took a longer time to return in the 1998 study, compared to the response time in 1995.
- While there was an overall decline in the response rates to both email and postal mail surveys compared to the 1995 survey, the postal mail enjoyed a higher response rate than the email survey in both the 1995 and 1998 studies (46% against the email survey’s 19.1% in 1998).

III. METHODOLOGY

Study objectives were:

1. To establish the effectiveness of the e-mail questionnaire as a data collection tool in mass communication research.
2. To compare the email questionnaire, telephone interview and traditional mail questionnaire in terms of response rate for simple, structured questionnaires and complex questionnaires.
3. To compare the email questionnaire, telephone interview and traditional mail questionnaire in terms of ability to collect large amounts of data.
4. To compare the email questionnaire, telephone interview and traditional mail questionnaire in terms of time taken for response.
5. To compare the email questionnaire, telephone interview and traditional mail questionnaire in terms of costs involved for data collection.

Hypotheses

Null Hypothesis (NH) 1. There is no significant difference in the total number of responses and the total number of non-responses got by email, telephone and postal mail survey questionnaires at the expected response rate of 60%.
NH 2. There is no significant difference in the number of responses got by
email surveys, telephone surveys and postal mail surveys.

NH 3. There is no significant difference in the number of completed responses
and non-responses got by the email survey questionnaire at the expected
response rate of 60%.

NH 4. There is no significant difference in the number of responses and the
number of non-responses got by the telephone survey questionnaire at the
expected response rate of 60%.

NH 5. There is no significant difference in the number of responses and the
number of non-responses got by the postal mail survey questionnaire at the
expected response rate of 60%.

NH 6. Within each survey type, there is no significant difference in the
number of responses for simple and complex questionnaires received in the
email survey, in the telephone survey, and in the postal mail survey.

NH 7. There is no significant difference in the number of responses for simple
and short questionnaires received in the email survey, the telephone survey
and the postal survey.

NH 8. There is no significant difference in the number of responses for
complex and medium length questionnaires received in the email survey, the
telephone survey and the postal mail survey.

NH 9. There is no significant difference in the number of responses for simple
and lengthy questionnaires received in the email survey, the telephone survey
and postal mail survey.

NH 10. There is no significant difference in the number of completed
responses and the number of incomplete responses for simple and complex
questionnaires in the email survey.
NH 11. There is no significant difference in the number of completed responses and the number of incomplete responses for simple and complex questionnaires in the telephone survey.

NH 12. There is no significant difference in the number of completed responses and the number of incomplete responses for simple and complex questionnaires in the postal mail survey.

- Only complete responses were considered for the hypotheses.
- Significance was tested against an acceptable response rate of 60% for all three modes of survey.

There is no single opinion about an acceptable response rate:
The monthly Current Population Survey conducted by the U.S. Census Bureau is known to achieve a response rate of 90%. Rigorously conducted surveys are known to achieve 60-70% response rate in the US. Most response rates however range from 30-50 %.

According to Earl Babbie (1990), a 50 % response rate is considered adequate for the researcher to analyse and report the results of the study. Sixty per cent is considered good and 70 % and above, very good. These estimates, though, do not differentiate among the types of survey tools used.

Variables

1. Independent variable: Email, postal mail and telephone as survey tools/modes

**Email:** The Electronic Mail, popularly called email, is a form of computer mediated communication on the World Wide Web.

It can be defined as a ‘system of servers and software that allows messages to be sent to a particular individual in accord with agreed standards.’

The RAND report of 1989 by Anderson Bikson, Law, Mitchell and others, defines the email as an electronic mail system that “permits the asynchronous electronic interchange of information between persons, groups of persons, and functional units of an organisation; and provides mechanisms supporting the creation, distribution, consumption, processing, and storage of this information” (Anderson et al, 1995).

**Telephone:** Developed by Alexander Graham Bell in 1876, the telephone is a device that carries sound over great distances using electricity (The New Book of Knowledge, 2005).

For the purposes of the Study, Bharat Sanchar Nigam Ltd.’s Chennai landline telephone numbers will be used.

**Postal mail:** This refers to the service of delivering letters/parcels to people whom they are addressed to. Letters/parcels are transported via roadways, railways, airways and sometimes waterways.

Postal mail is one of the oldest forms of long-distance communication. A letter may take a single day or a few days to a week to reach its destination.

The Indian Postal Mail Services, Chennai, will be used for the purpose of this Study.

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Each of the independent variables will have three types of questionnaires:

**X1a; X2a; and X3a:** The simple and short questionnaire: The simple and short questionnaire consists of close-ended items and is short.

**X1b; X2b; and X3b:** The complex and medium in length questionnaire: This has a combination of close-ended and open-ended items. It is longer than the simple and short questionnaire, but shorter than the simple and lengthy questionnaire. It can be described as medium in length.

**X1c; X2c; and X3c:** The simple and lengthy questionnaire: This questionnaire has a combination of close-ended and open-ended questions, simpler than the complex questionnaire, with a few rating scales. The purpose of having a lengthy questionnaire is to study the ability of the email, telephone and postal mail survey and to collect large amounts of data.

2. **Dependent variable: Effectiveness:** Effectiveness is studied in terms of:
   a) **Response rate** for simple and short, complex and medium, and simple and lengthy questionnaires.
   b) **Time taken** for response.
   c) **Cost** involved for data collection.

   a) **Response rate:** The American Association of Public Opinion Research (AAPOR) defines response rate as ‘The number of complete interviews with reporting units divided by the number of eligible reporting units in the sample’.5

   The AAPOR definition includes a lot of possibilities for ‘eligible reporting units’, such as non-existent numbers/addresses and email ids.

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(other info not available).
According to Colasanto, a survey’s response rate represents the number of people actually interviewed as a percentage of the total number of people originally sampled and eligible to be included in the survey.\(^\text{5}\)

**Responses will be categorised into complete response, incomplete response and non-response. Response refers to:**

- the actual filling in of the email questionnaire and mailing it back to the email address given;
- the actual answering of the questions in the questionnaire administered by the researcher on the telephone; and
- the actual filling in of the postal mail questionnaire and mailing it back to the postal address given.

For the hypotheses also, only complete responses will be considered, since incomplete responses are not useful, and shows the rejection of the survey by the respondent due to any number of reasons. Responses therefore, will be tested in terms of actual number of complete responses, and response rate will be given in percentages. Incomplete responses will be considered as non-response for hypotheses testing.

However, they cannot be ignored because they show the success of the mode of survey per se; especially with email and postal mail, where the effort needed to return a completed questionnaire is high. The Study will consider the relationship between type of questionnaire and incomplete response to check the significance.

**b) Time** refers to the quickness or speed of response, number of minutes/hours taken for the telephone interview, and number of days taken for email and postal mail survey responses to reach the researcher.

A time frame of two months was given to both postal and email questionnaires, after which data analysis was begun.

c) **Cost** refers to the amount, in rupees, spent on conducting the survey using the email, telephone and postal mail.

**Email cost** will include the cost of staying online while sending email questionnaires. The time spent on downloading email responses will also be considered.

**Telephone cost** includes the actual costs incurred for the number of minutes spent on each interview. The total number of minutes for all interviews including incomplete interviews, will be considered as part of the cost incurred. This will be multiplied by the amount charged per three minutes of local call charges of BSNL landline services.

**Postal mail** cost includes the cost incurred in making 225 copies of questionnaires and the cost incurred in postage (450 envelopes and 450 five-rupee stamps).

**Data Collection Methodology**

**Research design:** The basic design of the study is given below

\[
\begin{align*}
X_1 & \quad Y \\
X_2 & \quad Y \\
X_3 & \quad Y \\
\end{align*}
\]

Where

- X1 is the independent variable email questionnaire and Y the dependent variable effectiveness;
- X2 is the independent variable telephonic questionnaire, and Y the dependent variable effectiveness;
- X3 is the independent variable postal questionnaire, and Y the dependent variable effectiveness.

Each independent variable acts as a control/comparison group to the other.

Three types of questionnaires were used for all the modes:

- **Simple and short**, with 15 close-ended questions, excluding demographics.
Complex and medium length, with both close ended and open ended questions. Twenty one items, excluding demographics, with rating scales.

Simple and lengthy, with 30 questions excluding demographics, mainly close-ended, open-ended and questions requiring just one name/word: Eg: Name your favourite newspaper.

Sampling: Non-random sampling method was followed.
Base for postal mail and telephonic surveys: BSNL Chennai Telephones directory.
Email addresses were collected from contacts. This was done to ensure that respondents were Indians, preferably living in India.

Sample size: A total of 675 respondents.
- For email survey 225 respondents- with a sample size of 75 each for simple and short, complex and medium length, and short and lengthy questionnaires respectively.
- For postal mail survey 225 respondents - with a sample size of 75 each for simple and short, complex and medium length, and short and lengthy questionnaires respectively.
- For telephone survey 225 respondents - with a sample size of 75 each for simple and short, complex and medium length, and short and lengthy questionnaires respectively.

Respondent: Email: Respondents were email users who were Indians. To this end, email addresses were collected from contacts.
Postal mail: Respondents were landline telephone users listed in Chennai Telephones, BSNL’s telephone directory.
Telephone: Respondents were landline telephone users listed in Chennai Telephones, BSNL’s telephone directory.

Questionnaire administration
Email: The objective was to study the effectiveness of email as a survey tool for a large population. Questionnaires were prepared in Excel and converted to Word format. Questionnaires were sent as attachments and respondents were instructed on
how to complete and return the questionnaire. The researcher created a new Gmail id, sandhyarajshekar@gmail.com, for the purpose. The subject bar read: ‘hi, this is just to know what you think of the news media’. The email consisted of self-introduction and the purpose for which the questionnaire was being used (for a study as part of PhD thesis). It has to be clarified that the real objective of the Study was not revealed, as this would have influenced the response and defeated the purpose of the Study. Twenty mail failures were received, and twenty new email addresses were used, to compensate for those that did not reach the addressed respondent. The reasoning was that all 225 email questionnaires had to reach the addresses.

**Postal mail:** The researcher rented a post box at the local post office (P.O Box No. 1157, Kilpauk, Chennai-600 010), for a period of three months. Once the post box rental was terminated, a written letter to the Post Master was submitted, requesting him to deliver any mail that was addressed to the post box, to the researcher’s home address. Self-addressed, stamped envelopes were enclosed to reduce the efforts that would have to be taken to respond. 31 postal mails were returned due to change in address. New addresses were selected and 31 questionnaires were mailed to them, the reasoning being that all 225 postal questionnaires had to reach the addresses.

**Telephone:** The base for the telephone numbers was BSNL’s telephone directory (Chennai), 2003-04. Selected numbers and postal addresses were cross-checked on the BSNL website which had updated addresses and phone numbers. Despite this, there was a very large number of non-existing telephone numbers among the selected ones and had to compensated for. All 225 telephone surveys were conducted.

The experimental design involved conducting a survey using the questionnaires of the three different modes of mediated communication as tools.

**Survey topic**

Three factors influenced the choice of survey topic:

- A review of literature helped in the selection of the survey topic. According to research findings, higher the salience of the research topic, more the response.
- The second factor was the fact that the Study focussed on mass communication research.
- A third factor was that a common topic had to be used for all three types of surveys, for the purposes of comparision.
The topic selected, ‘Public opinion of news media’ was considered to meet all the above mentioned requirements. The topic was considered relevant in today’s news environment. Also, it was assumed that people who had postal addresses, telephone numbers or email addresses would have an exposure to at least one of the popular mass media: newspaper, magazine, radio, television and the Internet.

Data Analysis
The chi-square test will be applied to test the null hypotheses stated above.

Scope and Limitations of the study
The email is known to be effective as a survey tool when it comes to closed group surveys. Yun and Trumbo, for example, mention closed group email surveys that have achieved response rates as high as 72%; while generally, response rates for email surveys are lesser in comparison with face-to-face and even postal mail surveys. The cohesiveness found in closed group surveys (for example, organisational surveys) has been considered a positive influence on response rates. Response rates to closed group surveys have ranged from 56% to 67% and even 76%.

However, not much research has been done to study the effectiveness of email as a survey tool for a large, general population (Sheehan, and Hoy, 1999). The present study tries to study the effectiveness of email as a survey tool for large populations. The same yardstick is applied to both the postal and the telephone survey.

Since the Study required that respondents be Indians, preferably living in India, email addresses were collected through contacts. This also meant that sampling was non-random.

Pre-notification was not considered necessary since the study was actually testing response to a survey questionnaire, and the whole purpose would have been defeated if there were no responses to the pre-notification itself.

Pre notification on the phone/ face-to-face was not possible because neither the phone number nor the address (personal/official) of the email respondent was available. Also in some cases, the real name was not known.

No incentives were used for the study. While certain researchers consider it unethical, others believe that it results in biased answers. Also, it was considered to make all the three methods expensive, thereby reducing cost-effectiveness of each of the three modes.
Topic salience was however considered important and more persuasive in making the respondent open the mail and fill in the questionnaire. This factor was kept in mind when the study was conducted. A topic that was salient to all respondents—email, postal mail and telephone—had to be used for the survey. Marketing and even advertising topics were avoided because this was considered a negative influence on willingness to respond, since it would seem like a commercial survey.

Respondents were specifically told that the survey was for academic purposes. The questionnaires were of three types: simple and short; complex and medium length; and simple and lengthy. Since the simple questionnaire was also short, a separate short questionnaire was not considered essential. The simple and lengthy questionnaire was used to find out if the three types of survey modes were capable of collecting large amounts of data.

IV. FINDINGS AND ANALYSIS

Findings are analysed in four parts:

**Part I.** The main study: The effectiveness of email questionnaire, telephone interview and postal mail questionnaire as tools for data collection in mass communication research.

**Part II.** The Email questionnaire as a survey tool.

**Part III.** The telephone interview as a survey tool.

**Part IV.** The postal mail questionnaire as a survey tool.

**Part I**

This part involves the main study – ‘The email questionnaire as an effective tool for data collection in mass communication research – a comparative study with the telephone interview and the traditional mail questionnaire as mediated data collection tools’. It details how the sampling was done; the survey modes used, the approach adopted, that is, the method of contact, type of questionnaires used and personalisation attempted.

The Findings discuss in detail the response rates for the three different modes of communication. Three different types of questionnaires were used:

1. Simple and short
2. Complex and medium in length
3. Simple and lengthy

Response is discussed in terms of questionnaire type, in terms of medium and questionnaire type and in terms of each medium as a survey mode. Response in terms of time and cost for the three modes has also been calculated. The data obtained from the responses are tested against hypotheses to check significance of the data. Part I concludes with Inferences arrived on the (i) expected response rate of 60%; (ii) the quality of the questionnaire; (iii) capacity to collect large amounts of data; and (iv) response time and response cost. The inferences have been arrived at on the basis of statistical analysis.

1. Survey mode

Being a comparative study, the experiment involved multiple survey modes: the email, the postal mail and the telephone. The mixed mode was not used for any of the surveys at any stage.

2. Sampling

Studying the effectiveness of the three modes of survey involved experimentation. A total number of 657 respondents were sent questionnaires:

- Email questionnaires sent: 225. Undelivered: 30. Thirty more mails were sent.
- Postal mail questionnaires sent: 225. Undelivered: 31. Thirty one more postal mail questionnaires were sent.
- Telephone calls made: 225. Invalid calls: 41. Forty one more calls were made.

3. Approach

Pre-notification was not followed for any of the three modes. However, telephone interviews were fixed according to the convenience of the respondent, if he/she so wished. Also, the email questionnaire was sent as an attachment, which is supposed to have the same effect of pre-notification (Cho and La Rose, 1999). The postal mail did not have any kind of pre-notification.
There was no post-notification or reminders for email or postal mail surveys. Email survey respondents who mailed back filled in questionnaires were promptly sent thank you emails. Telephone survey respondents who had fixed a schedule for the interview were called up accordingly to conduct the interview.

4. Personalisation.
For the email survey, questionnaires were sent to 25 respondents at a time. Personalisation factor was present only in the self-introduction, where the researcher was identified as someone who had a mutual contact with the respondent. For both the postal mail and email, the salutation was ‘Dear respondent’. Personalisation in the form of naming the person was used for the telephone survey. Names given against the telephone number in the Chennai Telephone Directory were used in the telephone survey.

- **The Email questionnaire.** Respondents were told that the questionnaire was for educational purposes. The researcher was identified as a PhD candidate from Mysore University. A request was made to respond to the questionnaire.

- **The postal mail questionnaire.** Using the postal mail for survey involved a lot of tasks. Two hundred and twenty five copies of the questionnaires were made. A P.O. box was opened at the local post office. The envelope contained a questionnaire and a stamped, self-addressed envelope to make the process as convenient as possible to the respondent.

- **The telephone interview.** The telephone interview involved calling up the selected number and seeking permission to interview anyone in the house above the age of 18. The interviewer introduced herself as a PhD scholar conducting a survey for academic purposes.

5. The Questionnaire
Three different types of questionnaires were used for the experiment. In each survey mode, 75 respondents were sent the simple and short questionnaire, 75 the complex
and medium length questionnaire, and 75 the simple and long questionnaire, thus making up the total of 225 respondents.

6. Topic Salience
The topic, ‘Public opinion on news media’ was considered salient for all three survey respondents.

7. Findings
Findings are reported in terms of response rate, response time and cost.

a) Response Rates. The survey among 675 respondents using three different modes of communication achieved a response rate of 26.5 % or 179 responses (table 1). The email and postal mail contributed very little to the total. The telephone contributed 74.3 % of the responses.

The telephone has achieved the highest response with 133 out of 225 (59.11 %) respondents completing the interview. However, it also has the highest number of incomplete responses, with 15.5 % of the total telephone respondents cutting the interview short.

The postal mail and the email received extremely poor response rates - 14.6 % and 5.77 % (out of 225 email questionnaires each) respectively. The postal mail did have a few respondents sending in a few incomplete questionnaires, but their number was too few – 6/225 – to be useful for analysis.

The email survey, with the highest number of non-responses, did not get any incomplete responses. The Study shows a very low response rate (5.11 %) for the email questionnaire. It is significant that there were nil incomplete responses.

Incomplete responses present an interesting picture. The complex questionnaire resulted in 21 incomplete responses, and the simple questionnaire, 11. The lengthy questionnaire, though, has the largest number of complete responses (50), and the lowest number of incomplete responses (3).

From these results it can be inferred that the reason for refusal to complete the questionnaire could have been the nature of the simple and complex questionnaires.
b) **Time and cost.** In terms of time and cost, the telephone survey is more advantageous as it costs less (hiring field workers, should of course, cost heavily, but that applies for all modes), and takes much less time.

**Statistical analysis resulted in the following conclusions:**

- **There is a significant difference** in the total number of responses and the total number of non-responses got by email, telephone and postal mail survey questionnaires at the expected response rate of 60%.
- **There is a significant difference** in the number of responses got by email surveys, telephone surveys and postal mail surveys at the expected response rate of 60%.
- **There is a significant difference** in the number of responses and non responses got by the email survey at the expected response rate of 60%.
- **The Null Hypothesis is accepted: There is no significant difference** in the number of responses and the number of non-responses got by the telephone survey questionnaire at the expected response rate of 60%.
- **There is a significant difference** in the number of responses and the number of non-responses got by the postal mail survey questionnaire at the expected response rate of 60%.
- **The Null Hypothesis is accepted: Within each survey type, there is no significant difference** in the number of responses for simple and short; and complex and medium length questionnaires received in the email survey, in the telephone survey; and in the postal mail survey.
- **There is a significant difference** in the number of responses for simple and short questionnaires received in the email survey, the telephone survey and the postal survey.
- **There is a significant difference** in the number of responses for complex and medium length questionnaires received in the email survey, the telephone survey and the postal mail survey.
- **There is a significant difference** in the number of responses for simple and lengthy questionnaires received in the email survey, the telephone survey and postal mail survey.
• **There is no significant difference** in the number of completed responses and the number of incomplete responses for simple and complex questionnaires in the email survey.

(No statistical analysis used since the number of incomplete responses is 0).

• **There is no significant difference** in the number of completed responses and the number of incomplete responses for simple and complex questionnaires in the telephone survey.

• **There is no significant difference** in the number of completed responses and the number of incomplete responses for simple and complex questionnaires in the postal mail survey.

(Chi square value = 0.17 is not significant at 1df, 0.05 level. But expected values were less than 5 for the incomplete category).

Chi square value = 0.17 is not significant at 1df, 0.05 level. But expected values were less than 5 for the incomplete category.

**Part II**

Though the email survey showed an appalling response rate, the speed of response is high and cost is low. This prompted the researcher to conduct three more studies to test if email can be an effective survey mode. Speed and cost are not important considerations for the following studies.

A. **Effectiveness of the Gmail questionnaire with the ‘open as a google document’ option for response**: A study among gmail users.

B. **Effectiveness of email questionnaire as a survey tool**– A study among members of Orkut, an online social network group.

C. **Effectiveness of the email questionnaire as a survey tool**- An experiment using purposive snowball sampling, mixed modes of contact and high topic salience.
Part II focuses on the above three experiments conducted to test the effectiveness of email questionnaire as a survey tool. The details of each are given below:

**STUDY A: ‘Effectiveness of the Gmail questionnaire with the ‘open as a google document’ option for response: A study among Gmail users’**.

The email questionnaire in the main study (Part I) was sent as an attachment and had to be copied and pasted or downloaded onto the system before filling it in, then sent back as an attachment. This was suspected to be a strong reason for lack of response.

The ‘open as a google document’ option in Gmail allows for editing of an attachment once the user opens it as a google document. Opening a questionnaire as a google document, answering it and mailing it back is simpler and quicker than clicking on a link to open the questionnaire on a website and answering it.

The Study A objective was therefore:

- To study if the ‘open as a google document’ option in Gmail would persuade email respondents to open it as a Google document, fill in the questionnaire and mail it back to the researcher.

**Methodology**: The experiment was used to test the effectiveness of the email questionnaire mailed to the Gmail user. A survey questionnaire on a relevant topic was emailed to respondents to study the effectiveness of the email questionnaire as a survey tool.

Effectiveness was studied in terms of response rate. The main study (Part I) showed that email was effective in terms of low cost and high speed of response. Therefore, cost and speed were not considered here.

1. **Mode**

Only one survey mode- the email was used. The tool used was the email questionnaire.

2. **Sampling**
Seventy five Gmail users were mailed the questionnaire. Their addresses were got through friends. They were also asked to comment on the experience of using the Google document to respond to questionnaires.

3. Approach

Pre-notification was not followed. The email questionnaire was sent as an attachment, which is supposed to have the same effect of pre-notification (Cho and La Rose, 1999). There were no reminder emails. Responses were sent a ‘thank you’ email.

4. Personalisation

Questionnaires were sent to 10 respondents at a time. Personalisation factor was present only in the self-introduction, where the researcher was identified as someone who had a mutual contact with the respondent.

5. The Questionnaire

Since there was no significant difference in the response rate among the type of questionnaires used for the email survey, a single questionnaire with 24 items was framed using the items of the original simple, complex and lengthy questionnaires.

6. Topic salience

Since email users in India are mostly educated youth, the topic ‘Public opinion on news media’ was considered relevant for the survey.

7. Findings

Anyone who has used the Google document will be aware of the extreme convenience it offers. The only drawback is that the user has to be online while he/she works on the file that is opened as a Google document. But with Internet access rates being quite low these days, this may not be a deterrent factor if the work is done in a few minutes.

Of the 75 questionnaires sent via the email, only three were filled and returned within a few days. One respondent was a researcher, and the other two were students. There was also one flaming and one mail delivery failure.
Inference

The ease of use of email via the Google document was not persuasive in making the email users respond to the questionnaire.

**STUDY B: ‘Effectiveness of email questionnaire as a survey tool– a study among members of Orkut, an online social network group’**.

Study B checks out the effectiveness of using a closed online social network site for email survey. Social networking sites offer members a networked system for socialising with friends, for finding old friends and for making new friends online (Social Networking Websites Review 2008).

**Orkut** is a social networking site that is arguable the most popular one used by Indians (a little more than 17% of Orkut’s members are Indian.) Orkut allows its members to look at profiles of others before they decide whether to add them as friends. All one needs is a Google account to register on Orkut.

More than 60 % of Orkut members are in the age group of 18-25. Socialising with friends tops the reasons for registering at Orkut (www.orkut.co.in).

**Objective:** The objectives for the Study were as follows:

- To study the effectiveness of the email survey conducted among members of a closed online group, in terms of response rate.
- To study the effectiveness of the email survey conducted among members of a closed online group, in terms of speed of response.

**Methodology:** The experiment included an email survey being conducted among known members (‘friends’, ‘fans’) on Orkut. Since the researcher was newly introduced to Orkut, the friends list was short and ineligible for the research. A member who had more than 350 friends and 90 fans on Orkut (at the time of the research) volunteered to conduct the experiment for the researcher. A pre-test was conducted on three respondents outside the ‘fans’ group.

1. **Survey mode:** Modes of communication involved sending pre-notification and post-notification through Orkut. Regular email addresses of respondents were used for sending the questionnaire for data collection.
2. Sampling: Respondents selected for the experiment were ‘fans’ of the volunteer researcher. Of the 90 fans, one was not selected since his email id had been hacked. All other members were selected for the experiment. Sample size for the study was 89.

3. Approach: A three contact approach using a single mode - online communication: Orkut for pre-notification and post-notification, email address for administering the survey - was adopted for the study. The first step was to send a formal pre-notification on Orkut inviting the respondents to participate in an academic survey. This was sent in three batches. The email questionnaire was sent as an attachment three days later for each of the batches, to a total of 86 respondents. Three of the 89 mailed in refusal to take part in the survey. Orkut gives a member the option of sending the questionnaire as a *scrap* or a *message*. Since both have a word limit of 1,024 characters, the questionnaire had to be divided into three components and sent. Pre-test respondents considered this irksome. Sending the questionnaire as an attachment to the email addresses of the members through the regular email platform was considered the best way of conducting the survey. To those who did not respond to the questionnaire, post-notification was sent after one week of conducting the email survey using Orkut’s *message* option.

4. Personalisation

Pre-notification letters, the survey and post-notification to the 86 respondents were sent in three batches. The salutation and letter were informal in style and tone.

5. The Questionnaire

Since there was no significant difference in the response rate among the type of questionnaires used for the email survey, a single questionnaire with 24 items was framed using the items of the original simple, complex and lengthy questionnaires.

6. Topic salience
Members of online network sites like Orkut are educated and active with media use, at least with the Internet. The topic ‘Public opinion on news media’ was considered relevant for the survey.

7. Findings

a) Response rate: The Orkut survey achieved a response rate of 38.8%

b) Response Time: While the first few responses came within minutes, the last ones came after two weeks, since the respondents were either out of town or the letters had gone to the spam section of the recipient’s mail box.

Inference
Chi square value shows that the number of non-responses is significantly higher than the number of responses at the expected response rate of 60%.

Nevertheless, the response rate (38.8%) is considerably higher than in the previous two studies conducted by the researcher.

STUDY C: ‘Effectiveness of the email questionnaire as a survey tool - an experiment using purposive snowball sampling, mixed modes of contact and high topic salience’.

Study C experiments on several important factors: purposive snowball sampling; mixed mode pre-notification and post-notification; and high topic salience.

Objectives: Study C had the following objectives:

- To study the effectiveness of the email survey using the purposive, snowball sampling method in achieving the desired number of responses.
- To study the effectiveness of the email survey using mixed mode pre-notification and post-notification approaches in achieving the desired number of responses.
- To study the effectiveness of the email survey with high topic salience in getting desired number of responses.
**Methodology**: A survey using the email as a tool was conducted among email users known to the researcher. Pre-notification was done to get the assent of the email user to respond to the questionnaire. Post-notification was also used to remind respondents who have not responded within one week. Pre-notification and post-notification were used in the first phase.

For the next phases, the selected respondents were asked to pre notify friends and mail them the questionnaire. They were also asked to post notify those who didn’t respond within the first one week. However, the researcher is not in control of pre-notification and post-notification in the second phase.

1. **Survey mode**

   Email was the mode used for the survey. Mixed mode was used at different stages of contact. Pre-notification was done face to face, on telephone and/or through online chat. For post-notification, face to face, cell phone SMS and email methods were used.

2. **Sampling**. Sampling is purposive, because response can be expected to be high. An email survey was conducted among email users who are known to the researcher. Snowball sampling was also used to get more email users to respond. Acquaintances of the researcher who were pre-notified in person (face-to-face or telephone) and who agreed to respond to the questionnaire were, in turn, asked to send them to their friends *after getting their assent*.

   The sample size of 50 was aimed at being reached in this manner.

   The theory of reciprocity and several rules of message reception also helped the researcher decide to use the purposive snowball sampling method.

   Another important reason for adopting the purposive snowball sampling was the success of the email as a survey mode for closed groups (which meant that either the sender is no stranger, or that coming from a member of the group gave the others a sense of security and responsibility to respond).

3. **Approach**

   For phase I of the survey, a four-contact approach was adopted, using mixed mode communication. Mixed mode was used at the pre-notification and post-notification
stages. Pre-notification was done with face to face, telephone and/or online chat. For post-notification, face to face and email were used.

- **Pre-notification**: Pre-notification had two important objectives:
  - To inform and get the consent of phase I respondents to take part in the survey
  - To inform and get the acquiescence of phase I respondents to participate in the snowball sampling process.
  
  Online field aides for phase II were instructed to pre-notify friends to whom they planned to send the questionnaires, but it was difficult for the researcher to monitor this.

- **Questionnaire administration**: The questionnaires were sent as an attachment to whoever consented to respond.

- **Post-notification**: Post-notification had two important objectives:
  - To remind phase I respondents to respond and mail back the questionnaire
  - To remind phase I respondents to mail the questionnaires to their acquaintances.
  
  Online field assistants for phase II were instructed to post-notify friends to whom they planned to send the questionnaires, but it was difficult for the researcher to monitor this.

- **Thank you mails** were sent to those who responded in the phase I survey, and also to phase II respondents as and when the researcher received a completed response from them.

4. **Personalisation**

Phase I email questionnaires were highly personalised. Each respondent was addressed by name and sent a separate questionnaire. The subject line just said ‘questionnaire’ (since receivers were pre-notified and expected the questionnaire).

5. **Topic Salience**

The topic for the email survey, ‘Strangers in the inbox- A study on the attitude and response behaviour of email users towards mails from strangers, spam, bulk mail and forwards’, is considered extremely relevant for an email study.
6. The Questionnaire
The structured questionnaire consisted of 11 items apart from four questions relating to the demographic profile of the respondent. Except for three, all the other questions were close-ended with multiple options.

7. Findings

   a) Response: The number of responses received was 57 against the targeted sample size of 50.

   b) Time taken: The crucial factor in such a study is time. Responses came within two days to a week of sending the e-mail. Experience shows that rarely, if ever, a response came after the first week. However, the entire process can take considerably long, from three weeks to a month:

   - Phase I survey with pre-notification and post-notification for responses took one week.
   - Reminders to phase I online field aids to pre-notify phase II respondents takes a few days to a week.
   - Pre-notifications and post-notification for responses in phase II takes one week.

   c) Cost: Cost incurred was negligible.

Inference

Pre-notification in the first phase is especially important because not only should the respondent consent to fill in the questionnaire, he/she should also send the questionnaire to other known people, make sure they fill it and then mail it back to the researcher. These phase I respondents, who, in turn, will send questionnaires to their friends will henceforth be called online field aides. The number of non-responses in phase I are 6/24 respondents. Even though there was no hundred percent response rate in phase 1, 75% response rate is extremely high.

Post-notification was done several times to the same person to remind friends to respond. There was a higher response when online field aides requested their friends to mail it back to their email addresses, rather than to the researcher. Of the 18 who actually responded and sent email questionnaires to acquaintances, 12 were asked to
conducted snowball sampling. Four of them made successful use of snowball sampling and got 39 more responses for the study.

The five non-responses in phase I were attributed to lack of time—four were students busy with examinations, and one lecturer, also busy with examinations. This happened despite the respondents being very willing to respond and one of them actually forwarded it to other friends. Despite several post-notifications, the researcher failed to get a response from them. But the researcher did get four responses from the lecturer who did not respond but had sent it to others.

For successful snowball sampling, a separate, personal letter from the online field aide was effective. Also, those online field aides who asked their respondents to send it to their (online field aide’s) email address rather than that of the researcher, also reported success.

Generally, responses from male respondents were slow/lacking.

**Part III**

**Telephone interview as a survey tool:** This part focuses on the findings of the main Study (Part I). The telephone comes across as the most successful tool in the main Study, in terms of response rate and time. Even though it is not as inexpensive as the email, it is a cost-effective method. No further research was considered necessary.

**Part IV**

**Postal mail questionnaire as a survey tool:** The postal mail proved to be ineffective in terms of response rate, cost and time taken.

Further study was not considered necessary.

**V. INFERERENCE**

The following inferences can be made based on the study findings:

- **The telephone as a tool for academic research in mass communication holds a lot of promise in India.** This can be seen in the high response rate of almost 60%, in the expenses incurred (less than Rs.400) and the total response time (less than 13 hours or half a day).
The email known for its advantages of time and cost, is highly ineffective in terms of response rates, receiving fewer responses than the postal mail questionnaire.

The postal mail had a very low response rate, cost very high, and took a longer time than the email for responses to reach the researcher.

The importance of the type of questionnaire – simple and short or complex and medium - is inconclusive because of poor response rates for email and postal mail.

The capacity of the email and postal mail to collect large amounts of data is also inconclusive for the above said reason.

For the telephone interview, the lengthy questionnaire holds promise. It had a higher response rate fewer incomplete responses than both the simple and short and complex and medium length questionnaire. The telephone, therefore, is also capable of collecting large amounts of data.

The telephone as a survey mode

- The telephone was successful in achieving a significantly high response rate (almost 60 %, the same as the expected response rate).
- The telephone was significantly more effective than the other two tools, the email and the postal mail, in terms of response rate and time.
- The telephone, though more expensive than the email as a survey tool, was significantly less expensive than the postal mail as a survey tool.
- The Study showed that the telephone was also capable of collecting large amounts of data.
- The telephone was found to be the most cost – effective tool in terms of response rate, time and cost.

Recommendations

The telephone interview for academic research in mass communication has a lot of potential in India, even though the rising number of marketing calls may pose a problem.
• One important area for further research for the telephone as a survey tool is to find ways to reduce the number of incomplete responses.
• The questionnaire should be simple and should provide respondents lots of opportunities to talk and express themselves.
• Avoid too many options for close-ended questions.
• Avoid complex rating scales.
• Pre-notification may or may not be necessary. A proper self-introduction, a clear, short explanation of the research and its purpose are important in creating the right impression.
• Permission may be obtained to conduct the interview during the first phone call itself. If that is not possible, fix a schedule that is convenient for the respondent.
• Strictly follow all rules of etiquette.
• Telephone directories that are widely available in book form, in compact discs or even online are reliable sources for sampling.

**The email questionnaire as a survey mode**

The email as a survey tool for a large population in the present study achieved an insignificant response rate of 5.77%. While the late 1990s saw a rise in the use of the email for data collection by researchers, studies showed a corresponding decrease in the response rate to email surveys. From response rates of about 46% in 1995-1996, email response rates had reduced to 31% in 1998-1999 (Sheehan, Kim 2001).

**Study A,** ‘Effectiveness of the Gmail questionnaire with the ‘open as a google document’ option for response: A study among Gmail users’, with a poor response rate of 3 out of a sample size 75, proved that ease of use of email for response (by using the ‘open as a google document’ option) was not enough to persuade email users to respond to the questionnaire.

**Study B,** ‘Effectiveness of email as a survey tool— a study among members of Orkut, an online social network group’, used relevance of the sender of the message as a persuasive factor in getting responses to the email survey. The response rate of 33.8%, though encouraging, was not significant. While the 33.8% response rate may
be attributed to relevance of the person sending the questionnaire, the lack of context relevance was probably the reason for the below average response.

**Study C**, ‘Effectiveness of the email as a survey tool - An experiment using purposive snowball sampling, mixed modes of contact and high topic salience’; aimed at satisfying all the motivational factors, by maintaining the relevance of the sender, the message, the channel and the context. The Study was successful in getting 57 responses as against the targeted 50.

**Model for successful email survey**

The purposive, snowball sampling method for data collection using the email as a survey tool can be used to help increase response rates for email surveys of large populations.
Advantages of the purposive snowball sampling method for email survey

- Purposive snowball sampling can be representative of particular strata of people if the required strata are clearly defined, identified and targeted for response.
• Purposive snowball sampling can be used to collect data from a large population of email users.
• Purposive snowball sampling can be used in more than two phases, where the respondent of one phase in turn takes on the role of online field aides for the next phase. But it is imperative that pre notification is done and prior assent taken from the respondent before he/she takes on the role of online field aide.

Disadvantages of the purposive snowball sampling method for email survey

• The control of the researcher over data collection and sampling is weakened after phase I, especially when it comes to pre-notification and post notification.
• If the rules of strata are not followed strictly, it may result in wastage of data collected.

The Postal mail as a survey tool

The study has shown that the postal mail is not a viable survey tool in India, in terms of response rate, cost and time. Use of the postal mail is not recommended, even in a mixed mode survey.

Applications of the Study

Though research in this area is being conducted for the past four decades, not much has been done in India.

• The researcher has suggested a new model for successful email surveys for a large population of email users, using non-random sampling.
• The sampling method used in Study C was successful in getting 57 responses as against a target of 50. Cost incurred was low and responses came within two days to less than a week.
• The present study has shown that the telephone can be used successfully for surveys in India.
• Research in the US has shown decreasing response rates to email surveys. The main Study also supports these findings, in an Indian context.
• The Study further tried to find out why email users are unwilling to respond to email questionnaires. The **findings help throw light on opinions and attitudes of email users**, and emphasises that they respond to email questionnaires only if sent by known people.

• The present study also shows that as elsewhere in the world, the **effectiveness of postal mail survey is low** in terms of response rate, costs and time; thus making it old and obsolete.

**Recommendations for Further Research**

• Study the effectiveness of using mixed survey mode approach to achieve adequate response rate for email questionnaire using random sampling. This necessitates that the research has more than one contact information about the respondent.

• Study the role of incentives in increasing email responses.

• Conduct studies to test the effectiveness of computers (off-line) as survey modes, in shopping complexes and other public places in India.

• Conduct studies to test the effectiveness of the mobile phone as a survey mode.

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REFERENCES


CHAPTER I

I. INTRODUCTION

- Survey Research
- Survey Types
  - Personal survey
  - Telephone survey
  - Postal mail survey
  - Computer survey
  - Internet survey
- Choosing the right survey type
- Research in mass media
- New Media
- The Internet as new media
- Internet and Research
- Indian scenario
- The electronic mail (email)
- The email as a survey tool
- Justification for the Study

II. REVIEW OF LITERATURE

- The Information Society
- Technological Determinism
- Social Shaping of Technology
- Technology Acceptance Theory
- Exchange Theory
- Media Richness Theory
- Review of research literature
  - Sampling
  - Survey modes
  - Approach
  - Mixed mode surveys
  - The Questionnaire
  - Topic Salience
  - Personalisation
  - Incentives
  - Response rate
  - Response Speed and costs
III. METHODOLOGY

- Objectives
- Hypotheses
- Variables
  - Independent variable
  - Dependent variable
- Data Collection Methodology
- Research design
- Sampling
- Questionnaire administration
- Data Analysis
- Scope and Limitations of the study

IV. ANALYSIS AND FINDINGS

Part I

- Survey mode
- Sampling
- Approach
- Personalisation.
- The Questionnaire
- Topic Salience
- Findings
  - Response Rates
  - Response time and costs

- Hypotheses
- Inference

Part II

- Email questionnaire as a survey tool
- Study A: Effectiveness of the Gmail questionnaire with the ‘open as a google document’ option for response: A study among gmail users.
- Study B. Effectiveness of email questionnaire as a survey tool – a study among members of Orkut, an online social network group.
- Study C. Effectiveness of the email questionnaire as a survey tool – an experiment using purposive snowball sampling, mixed modes of contact and high topic salience.

- Inference
Part III

➢ Telephone interview as a survey tool

Part IV

➢ Postal mail questionnaire as a survey tool

V. INFERENCES

➢ The Main Study
  • Findings at a glance
  • Inference
  • The telephone as a survey mode
  • Recommendations
➢ The email questionnaire as a survey mode
➢ The email and telephone as survey modes
➢ Model for successful email survey
  • The purposive snowball sampling method for email survey
  • Advantages of the purposive snowball sampling method for email survey
  • Disadvantages of the purposive snowball sampling method for email survey
➢ The Postal mail as a survey tool
➢ Applications of the Study
➢ Recommendations for Further Research

Signature of Guide

Signature of Research Scholar

*.*.*.
The Email Questionnaire as an Effective Tool for Data Collection in Mass Communication Research – A Comparative Study With the Telephone Interview and the Traditional Mail Questionnaire as Mediated Data Collection Tools

A Synopsis of the Thesis to be submitted by

Sandhya Rajasekhar

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