II M.Com

RESEARCH METHODOLOGY

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Unit III to V

Presented By

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RESEARCH METHODOLOGY

UNIT III SAMPLING

SAMPLING INTRODUCTION

- ❖ **Population/Universe:** in statistics denotes the aggregate from which sample (items) is to be taken.
- ❖ A population can be defined as including all people or items with the characteristic one wish to understand.
- ❖ Because there is very rarely enough time or money to gather information from everyone or everything in a population, the goal becomes finding a representative sample (or subset) of that population.
- ❖ **Sampling** frame is the list from which the potential respondents are drawn .
- ❖ **A sample** is "a smaller (but hopefully representative) collection of units from a population used to determine truths about that population"

SAMPLING

Sampling: the process of learning about population on the basis of sample drawn from it.

Three elements in process of sampling:

1. Selecting the sample
2. Collecting the information
3. Making inference about population

Statistics: values obtained from study of a sample.

Parameters: such values from study of population.

ADVANTAGES OF SAMPLING

- ❖ Less resources (time, money)
- ❖ Less workload.
- ❖ Gives results with known accuracy that can be calculated mathematically.

SAMPLING PROCESS

- ❖ Defining the population of concern.
- ❖ Specifying a sampling frame, a set of items or events possible to measure.
- ❖ Specifying a sampling method for selecting items or events from the frame.
- ❖ Determining the sample size.
- ❖ Implementing the sampling plan.
- ❖ Sampling and data collection

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ESSENTIALS OF SAMPLING

❖ Representativeness- ensure by random selection

❖ Adequacy - sample size

❖ Independence - same chance of selection

❖ Homogeneity - no basic difference in nature of units.

SAMPLING METHODS

I. Non Probability

    1. Judgment

    2. Quota

    3. Convenience

    4. Snowball

II. Probability

    1. Simple Random

    2. Stratified Random

    3. Systematic

    4. Cluster

III. Mixed

    1. Multi stage

    2. Multi phase

    3. Lot Quality Assurance

I. Non Probability

1. Judgment

❖ Judgment/Purposive/Deliberate sampling.

❖ Depends exclusively on the **judgment of investigator.**

❖ Sample selected which investigator thinks to be most **typical of the universe.**

Judgment Sampling Merits

Small no. of sampling units

Study unknown traits/case sampling

Urgent public policy & business decisions

Judgment Sampling Demerits

Personal prejudice & bias

No objective way of evaluating reliability of results

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2. Quota Sampling

- ❖ Most commonly used in non probability sampling.
- ❖ Quotas set up according to some specified characteristic.
- ❖ Within the quota , selection depends on personal judgment.

Quota Sampling Merit- Used in public opinion studies

Quota Sampling Demerit – personal prejudice and bias

3. Convenience Sampling

- ❖ Convenient sample units selected.
- ❖ Selected neither by probability nor by judgment.

Convenience Sampling Merit – useful in pilot studies.

Convenience Sampling Demerit – results usually biased and unsatisfactory.

4. Snowball Sampling

- ❖ A special non probability method used when the desired sample characteristic is rare.
- ❖ It may be extremely difficult or cost prohibitive to locate respondents in these situations. Snowball sampling relies on referrals from initial subjects to generate additional subjects.

Snowball Sampling - Steps

- ❖ Make contact with one or two cases in the population.
- ❖ Ask these cases to identify further cases.
- ❖ Ask these new cases to identify further new cases.
- ❖ Stop when either no new cases are given or the sample is as large as is manageable.

Snowball Sampling Merit - access to difficult to reach populations (other methods may not yield any results).

Snowball Sampling Demerit - not representative of the population and will result in a biased sample as it is self-selecting.

II. PROBABILITY SAMPLING

1. Simple Random Sampling

- ❖ Each unit has an equal opportunity of being selected.
- ❖ Chance determines which items shall be included.
- ❖ The sample is a simple random sample if any of the following is true (Chou)
  - ➤ All items selected independently.
  - ➤ At each selection, all remaining items have same chance of being selected.
  - ➤ All the possible samples of a given size are equally likely to be selected.

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Lottery Method

With replacement

- Probability each item: 1/N

Without replacement

– Probability 1st draw: 1/N

Probability 2nd draw: 1/N-1

Simple Random Sampling

Merits

- ❖ No personal bias.
- ❖ Sample more representative of population.
- ❖ Accuracy can be assessed as sampling errors follow principals of chance.

Demerits

Requires completely catalogued universe.

Cases too widely dispersed - more time and cost.

2. Stratified Random Sampling

- ❖ Universe is sub divided into mutually exclusive groups.
- ❖ A simple random sample is then chosen independently from each group.

Stratified Random Sampling Merits

- ❖ More representatives.
- ❖ Greater accuracy.
- ❖ Greater geographical concentration.

Stratified Random Sampling Demerits

- ❖ Utmost care in dividing strata.
- ❖ Skilled sampling supervisors.
- ❖ Cost per observation may be high.

3. Systematic Sampling

- ❖ Selecting first unit at random.
- ❖ Selecting additional units at evenly spaced intervals.
- ❖ Complete list of population available.

Systematic Sampling Merits

- ❖ Simple and convenient.
- ❖ Less time consuming.
- ❖ Demerits
- ❖ Population with hidden periodicities.

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4. Cluster Sampling

❖ A sampling technique in which the entire population of interest is divided into groups, or clusters, and a random sample of these clusters is selected.

❖ Each cluster must be mutually exclusive and together the clusters must include the entire population.

❖ After clusters are selected, then all units within the clusters are selected. No units from non-selected clusters are included in the sample.

Cluster Sampling - Steps

❖ Identification of clusters

❖ List all cities, towns, villages & wards of cities with their population falling in target area under study.

❖ Calculate cumulative population & divide by 30, this gives sampling interval.

❖ Select a random no. less than or equal to sampling interval having same no. of digits. This forms 1st cluster.

❖ Random no.+ sampling interval = population of 2nd cluster.

❖ Second cluster + sampling interval = 3rd cluster.

Cluster Sampling Merits

❖ Most economical form of sampling.

❖ Larger sample for a similar fixed cost.

❖ Less time for listing and implementation.

❖ Reduce travel and other administrative costs.

Cluster Sampling Demerits

❖ May not reflect the diversity of the community.

❖ Standard errors of the estimates are high, compared to other sampling designs with same sample size .

III. Mixed

1. Multistage Sampling

❖ Sampling process carried out in various stages.

❖ An effective strategy because it banks on multiple randomizations.

❖ Used frequently when a complete list of all members of the population does not exist and is inappropriate.

Multistage Sampling Merits

❖ Introduces flexibility in the sampling method.

❖ Enables existing divisions and sub divisions of population to be used as units.

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❖ Large area can be covered.

❖ Valuable in under developed areas.

Multistage Sampling Demerits

❖ Less accurate than a sample chosen by a single stage process.

2. Multiphase Sampling

Used for studies to be carried out in multiple phases.

3. Lot Quality Assurance Sampling

❖ Originated in the manufacturing industry for quality control purposes.

❖ Manufacturers were interested in determining whether a batch, or lot, of goods met the desired specifications.

❖ The only outcome in this type of sampling is "acceptable" or "not acceptable"

❖ The sample size is the number of units that are selected from each lot.

❖ The decision value is the number of "defective" items that need to found before the lot is deemed unacceptable.

❖ Information from lots can be combined to obtain the overall proportion of defects.

❖ The population is first divided into a complete set of non-overlapping lots.

❖ Samples are then taken from every lot, and the proportion of defective items in each lot is calculated.

❖ The LQAS method is an example of stratified sampling, where the lots play the role of the strata.

There are two types of risks

➢ the risk of accepting a "bad" lot, referred to as **Type I error**

➢ the risk of not accepting a "good" lot, referred to as **Type II error**

ERRORS

I. SAMPLING ERRORS

  1. Biased – Elimination of all sources of Bias

  2. Unbiased – Increase sample size

II. NON SAMPLING ERRORS SAMPLE

❖ Data specification inadequate & inconsistent with respect to objective of census. Inaccurate or inappropriate methods of interview, observation, definitions.

❖ Lack of trained & experienced investigators.

❖ Errors due to non response.

❖ Errors in data processing operations

❖ Errors committed during presentation.

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UNIT IV – DATA COLLECTION

METHODS OF DATA COLLECTION

TYPES OF DATA

A. PRIMARY DATA

Methods of Data Collecting Primary Data

1. Observation Method

2. Interview Method

3. Telephonic Interviews

4. Questionnaire Method

5. Schedule Method

6. Other Methods of Data Collection

B. SECONDARY DATA

METHODS OF DATA COLLECTION

TYPES OF DATA

A. PRIMARY DATA

Methods of Data Collecting Primary Data

1. Observation Method

2. Structured Observation

B. SECONDARY DATA

PRIMARY DATA

Are those which are collected a fresh and for the first time and thus happen to be original in character and known as Primary data.

Collection of Primary Data

❖ There are several methods of collecting primary data, particularly in surveys and descriptive researches.

❖ In descriptive research, we obtain primary data either through observation or through direct communication with respondents in one form or another or through personal interviews.

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Methods of Data Collecting Primary Data

1. OBSERVATION METHOD:

Observation method is a method under which data from the field is collected with the help of observation by the observer or by personally going to the field.

Advantages

- ❖ Subjective bias eliminated
- ❖ Researcher gets Current information
- ❖ Independent to respondent's variable

Disadvantages

- ❖ It is expensive method
- ❖ Time consuming
- ❖ Limited information
- ❖ Unforeseen factors may interfere with observational task
- ❖ Respondents opinion cannot be recorded on certain subject

Types of Observation

i. Structured Observation

When observation is done by characterizing style of recording the observed information, standardized conditions of observation , definition of the units to be observed , selection of pertinent data of observation then it is structured observation

ii. Unstructured Observation

When observation is done without any thought before observation then it is unstructured observation.

iii. Participant & Non Participant Observation

When the Observer is member of the group which he is observing then it is Participant Observation. In participant observation Researcher can record natural behavior of group , Researcher can verify the truth of statements given by informants in the context of questionnaire , Difficult to collect information can obtain through this method but in this researcher may loose objectivity of research due emotional feelings. Prob. of control in observation isn't solved.

iv. Non Participant Observation

When observer is observing people without giving any information to them then it is non participant observation.

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v. **Controlled & Uncontrolled Observation**

❖ When the observation takes place in natural condition i.e. uncontrolled observation. It is done to get spontaneous picture of life and persons

❖ When observation takes place according to definite pre arranged plans , with experimental procedure then it is controlled observation generally done in laboratory under controlled condition.

2. INTERVIEW METHOD

❖ This method of collecting data involves presentation or oral-verbal stimuli and reply in terms of oral-verbal responses.

❖ Interview Method This is Oral Verbal communication . Where interviewer asks questions(which are aimed to get information required for study) to respondent

There is Different Type of Interviews:

Personal Interviews:

The interviewer asks questions generally in a face to face contact to the other person or persons.

Types of Personal Interview

❖ Structured Interview

❖ Predetermined questions

❖ Standardized techniques of recorded

❖ Interviewer follows rigid procedure

❖ Time required for such interview is less than non structured manner interview

❖ Not necessary of skill or specific knowledge

❖ Analysis of data becomes easier

❖ Unstructured Interview

❖ No Predetermined questions

❖ No Standardized techniques

❖ Interviewer has freedom to ask, omit, add any questions

❖ Ask questions without following sequence

❖ Deep knowledge & skill required

❖ Analysis of data is difficult prescribed manner

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Merits of Personal Interview

- ❖ Information at greater depth
- ❖ Flexibility of restructuring the Questionnaire
- ❖ Interviewer by his skill can over come resistance
- ❖ Non Response generally low
- ❖ Samples can controlled more effectively
- ❖ Personal information can be obtained
- ❖ Interviewer can collect supplementary information about respondent's personal characteristics and environment which has value in interpreting results

De Merits of Interview

- ❖ Expensive method
- ❖ Respondent may give bias information
- ❖ Some Executive people are not approachable so data collected may be inadequate
- ❖ Takes more time when samples are more
- ❖ Systematic errors may be occurred
- ❖ Supervisors has to do complex work of selecting ,training and supervising the field staff.

3. TELEPHONIC INTERVIEWS

- ❖ Contacting samples on telephone
- ❖ Uncommon method may be used in developed regions

Telephonic Interviews -Merits

- ❖ Flexible compare to mailing method
- ❖ Faster than other methods
- ❖ Cheaper than personal interview method
- ❖ Call-backs are simple and economical also
- ❖ High response than mailing method.
- ❖ When it is not possible to contact the respondent directly, then interview is conducted through – Telephone
- ❖ Replies can be recorded without embarrassment to respondents
- ❖ Interviewer can explain requirements more easily
- ❖ No field staff is required
- ❖ Wider distribution of sample is possible

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Telephonic Interviews -Demerits

- ❖ Little time is given to respondents
- ❖ Survey is restricted to respondents who have telephones
- ❖ Not suitable for intensive survey where comprehensive answers are required
- ❖ Bias information may be more
- ❖ Very difficult to make questionnaire because it should short and to the point

4. Other Types

Focused interviews: attention is focused on the given experience of the respondent and its possible effects.

Clinical interviews: concerned with broad underlying feelings or motivations or with the course of individual's life experience, rather than with the effects of the specific experience, as in the case of focused interview.

Group interviews: a group of 6 to 8 individuals is interviewed.

Qualitative and quantitative interviews: divided on the basis of subject matter i.e. whether qualitative or quantitative.

Individual interviews: interviewer meets a single person and interviews him.

Selection interviews: done for the selection of people for certain jobs.

Depth interviews: it deliberately aims to elicit unconscious as well as other types of material relating especially to personality dynamics and motivations.

4. Questionnaire Method

- ➢ This method of data collection is quite popular, particularly in case of big enquiries. The questionnaire is mailed to respondents who are expected to read and understand the questions and write down the reply in the space meant for the purpose in the questionnaire itself. The respondents have to answer the questions on their own.
- ➢ Questionnaire Method Questionnaire is sent to persons with request to answer the questions and return the questionnaire Questions are printed in definite order , mailed to samples who are expected to read that questions understand the questions and write the answers in provided space .

Merits of Questionnaire

- ❖ Low cost even the geographical area is large to cover
- ❖ Answers are in respondents word so free from bias
- ❖ Adequate time to think for answers
- ❖ Non approachable respondents may be conveniently contacted
- ❖ Large samples can be used so results are more reliable

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Demerits of Questionnaire

- ❖ Low rate of return of duly filled questionnaire
- ❖ Can be used when respondent is educated and co operative
- ❖ It is inflexible • Omission of some questions
- ❖ Difficult to know the expected respondent have filled the form or it is filled by some one else
- ❖ Slowest method of data collection

Main aspects of a Questionnaire

a. General Form

- ➢ Structured questionnaire – All questions and answers are specified and comments in the respondents own words are held to the minimum.
- ➢ Unstructured questionnaire- Interviewer is provided with general guide on the type pf information to be collected. He can form his own questions.
- ➢ Answers are taken down in respondents own words, at time recorded on tape.

b. Question sequence

- ➢ Question sequence should be clear and smoothly moving (relation of one question to another should readily apparent
- ➢ First few questions are important for creating interest in respondents mind
- ➢ Question which gives stress on memory or of a personal character and wealth should be avoided as opening questions
- ➢ Easier question should be at the start of the questionnaire
- ➢ General to specific questions should be the sequence of questions

c. Question formation and wording

- ➢ Question should easily understood Question should be simple and concrete.
- ➢ Closed questions are easy to handle but this is like fixing the answers in people's mouth. So depending upon problem for which survey is going on both close ended and open ended question may be asked in Questionnaire.
- ➢ Words having ambiguous meaning should be avoided
- ➢ Catch words, words with emotional connotations , danger words should be avoided.

Essentials of Good Questionnaire

- ❖ Good Questionnaire Should Short & simple Questions
- ❖ Should arranged in logical sequence (From Easy to difficult one)
- ❖ Technical terms should avoided

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- ❖ Some control questions which indicate reliability of the respondent (To Know consumption first expenditure and then weight or qty of that material)
- ❖ Questions affecting the sentiments of the respondents should avoided
- ❖ Adequate space for answers should be provided in questionnaire
- ❖ Provision for uncertainty (do not know, No preference)
- ❖ Directions regarding the filling of questionnaire should be given
- ❖ Physical Appearance - Quality of paper, color

5. Schedule Method

- ❖ It is one of the important methods for the study of social problems.
- ❖ Schedules Like Questionnaires but it filled by enumerator.
- ❖ Enumerators are specially appointed for filling questionnaire
- ❖ Enumerators explain the aim and objective to respondent and fill the answers in provided space.
- ❖ In the words of Thomas Carson Macormic, "The schedule is nothing more than a list of questions which it seems necessary to test the hypothesis ."

Questionnaire V/S Schedule

- Generally send through mail
- No further assistance from sender
- It is a Cheaper method
- Non response is high
- It is not always clear who replies
- Very slow process
- No Personal Contact
- Can be used only when respondent is educated and cooperative
- Wider distribution of sample
- Success depend on the quality of questionnaire

- Schedule is filled by the enumerator
- More expensive- Hier and train enumerators
- Non response is high
- Identity of the responder is known
- Information is collected well in time
- Direct personal contact
- Info can be collected form illiterates also
- No wide distribution of sample
- Success depends on the honesty and competence of questionnaire

6. Other Methods of Data Collection

a. Warranty Cards - Post card size cards sent to customers and feedback collected through asking questions on that card

b. Distributor or Store Audits - Audits are done by distributor or manufacturer's salesperson. Observation or copying information about inventory in retail shops. Useful method for knowing market share, market size, effect of in store promotion.

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c. Pantry Audits - From the observation of pantry of customer to know purchase habit of the people (which product , of what brand etc.) Questions may be asked at the time of audit

d. Consumer Panels - When pantry audit is done at regular basis, Daily record of consumption of certain customers. Or repeatedly interviewed at the specific periods to know their consumption.

e. Transitory consumer panels – for limited time

f. Continuing Consumer panel - For indefinite period

g. Use of Mechanical Device - Eye Cameras to record eyes focus on certain sketch

h. Psycho galvanometer to measure body excitement to visual stimulus

i. Motion Picture camera to record movement of body at the time of purchase

j. Audiometer concerned to TV. Useful to know Channel, program preference of people

k. Depth Interview - To discover the underlying motives or desires of samples . To explore needs , feelings of respondents. Skill is required , indirect question or projective techniques are used to know behavior of the respondent.

l. Content Analysis - Analysing contents of documentary material as news paper, books magazines about certain characteristics to identify and count

B. SECONDARY DATA

Are those which have been collected by someone else and which have already been passed through the statistical process are known as Secondary data.

Collection of secondary data

❖ Data that are already available

❖ Publications of Central, state , local government

❖ Technical and trade journals

❖ Books, Magazines, Newspaper

❖ Reports & publications of industry ,bank, stock exchange

❖ Reports by research scholars, Universities, economist

❖ Public Records

Before using Secondary data researcher must check

➢ Reliability of the data

➢ Suitability of data

➢ Adequacy of data

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Selection of appropriate method of data collection

➢ Nature and scope of the enquiry

➢ Availability of funds

➢ Time factor

➢ Precision required

THE PILOT STUDY :THE PILOT STUDY:

A small preliminary investigation of the same investigation of the same general character as the general character as the major study major study.

What should be ready by the time you come to the pilot study you come to the pilot study stage you should have:

❖ Conceptualized the problem

❖ Thought through the implications

❖ Completed the literary search

❖ Completed the literary search

❖ Stated the hypotheses / Question

❖ Determined the sample

❖ Developed the instrument

❖ Determined the sample

❖ Developed the instrument

❖ Worked out the research design

❖ Decided on the sampling technique

❖ Decide on the method of testing the hypotheses

❖ Planned on testing & analyzing his data

Reasons for conducting pilot studies

• Developing and testing adequacy of research instruments

• Assessing the feasibility of a (full-scale) study/survey

• Designing a research protocol

• Assessing whether the research protocol is realistic and workable

• Establishing whether the sampling frame and technique are effective

• Assessing the likely success of proposed recruitment approaches

• Identifying logistical problems which might occur using proposed methods

• Estimating variability in outcomes to help determining sample size

• Collecting preliminary data

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- Determining what resources (finance, staff) are needed for a planned study
- Assessing the proposed data analysis techniques to uncover potential problems
- Developing a research question and research plan
- Training a researcher in as many elements of the research process as possible
- Convincing funding bodies that the research team is competent and knowledgeable
- Convincing funding bodies that the main study is feasible and worth funding
- Convincing other stakeholders that the main study is worth supporting

Advantages of pilot study:

- ❖ Saves tremendous amount of time & money
- ❖ Helps clarify instructions
- ❖ Determine appropriate levels of independent variables
- ❖ Help make fewer mistakes in the real study

Some negative aspects of pilot study

- ❖ Requires time to conduct
- ❖ Entails some expenditure of supplies.
- ❖ When animals are used answerable to the concerned authorities
- ❖ Pilot study size:
- ❖ If sample size is 100 then 10 must be taken for pilot study ($1/10^{th}$)
- ❖ Time and cost may limit the pilot study size
- ❖ Size is determined by the amount of time available .of time available
- ❖ If the number of subjects or objects is sufficient to test the usefulness, then the size of the pilot study is adequate.

Principles in the pilot study:

Principle of confidentiality: Information discussed in the pilot study or pretest must be kept confidential.

Principle of serendity: Pilot study results are always under the influence of serendity principle .of serendity principle.

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Pretesting is the process of bringing together members of the priority audience to react to the components of a communication campaign before they are produced in final form. Pre-testing measures the reaction of the selected group of individuals and helps determine whether the priority audience will find the components - usually draft materials understandable, believable and appealing.

Components of a communication campaign that benefit from pretesting include:

- Key benefit and support points
- Messages
- Story boards
- Draft materials
- Name of campaign and logo
- Signature tune/music
- Translated text
- Interpersonal communication activities such as those used by peer educators or field workers

Before first draft	After first draft	After final draft
①	②	③
Concept Testing	Pretesting Stakeholder Reivew(s)	Field Testing

Who Should Conduct Pretesting?

A small focused team of key program staff (3-4 people) should develop the plans for **pretesting**. For the **pretest** to be most effective, however, it is best to find people *most like the priority audience* - who are trained in pretesting - to lead the actual **pretesting** exercises. Having someone who is like the audience will encourage honesty and openness during the **pretesting** process. Some organizations may consider hiring a research firm to conduct the **pretesting**.

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When Should Pretesting be conducted?

Pretesting should be completed after concept testing, message design and materials development, and before components of the communication campaign are finalized, produced and disseminated.

STEPS IN PRETEST

Step 1: Outline Pretest Objectives

To guide the pretest process, the team should develop a plan with a clear set of objectives for each component or material being tested. The objectives describe the aims of the pretest and the information to be gathered. Start by reviewing the creative brief(s) for the SBCC campaign. The creative brief(s) description of the priority audience, the promoted behavior and the key promise can be used to inform the **pretest** objectives.

Materials:	Posters (two alternative versions)
Priority Audience:	Young mothers (ages 18 - 25) from a rural town; educated at basic school level
Promoted Behavior:	Spacing pregnancies at least two years

Objectives:
- Determine whether the language, writing level and expressions are appropriate and understandable for young mothers with basic school education
- Establish whether the content - including images, font, spokesperson - are appealing and believable to young mothers
- Understand whether the poster motivates young mothers to practice birth spacing
- Determine which poster best meets the pretest objectives

Step 2: Choose the Pretest Method

After the **pretest** objectives are established, select the **pretest** method. Choosing the right method(s), described in the table below, depends largely on the following:

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Purpose	**What it means:** What and how much do we expect to learn from the sample priority audience?	**Why it is important:** Some methods, such as individual interviews, lend themselves to the collection of more detailed input and individual understanding, while others, such as FGDs, are better for getting broader insights.
Type of material or campaign element	**What it means:** Is the material long or short? Is it print, audio-visual, outdoor, or web-based? Is it a theme/concept or a material?	**Why it is important:** It can be difficult to test long materials using intercept interviews. For some materials audience interaction is helpful, while for others it is not.
Characteristics of audience	**What it means:** What is their level of formal education? What is a culturally appropriate method of accessing the knowledge of the chosen pretest audience?	**Why it is important:** Some audiences are less comfortable expressing themselves openly in a group. For example, one-on-one methods tend to garner more and better information from low-literate audiences, and it can be difficult to gather peer groups for some audiences (such as leaders). Also, low- and non-literate audiences would need individual assistance to complete written surveys.
Available resources	**What it means:** How much time and money is available? What is the expertise of the project team?	**Why it is important:** Ideally, expert pretesters would pretest until they are getting no new information. In reality, programs must use the best combination of resources available to them and design a pretesting plan accordingly.
Sensitive or complex nature of the materials	**What it means:** Will the audience feel more comfortable discussing the topic among their peers or on their own?	**Why it is important:** In groups, and especially mixed [or non-peer] groups, individuals might be less likely to speak or to express themselves honestly about sensitive topics or words/concepts they don't understand.
How the material will be used	**What it means:** Will the material be used in a group setting or one-on-one?	**Why it is important:** The context in which the material is used can affect how it is understood or perceived. For example, pretesting a group-oriented material with a group can provide insight on how groups will react to it. Such insights might not be obtained in individual pretests.

Review the table below for a list of pretesting methods. Keep in mind that using one method might limit the assessment. The use of mixed methods (e.g. survey questionnaire and in-depth interviews) is one way to capture additional information and fill gaps. Project teams should be able to articulate why they have chosen a certain method or methods for their pretest.

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Pretest Method	Ideal Sample Size	Appropriate For	Advantages/ Disadvantages
Focus Group Discussions (FGDs) A discussion on a specific topic guided by a trained facilitator or moderator.	Six to ten people for each FGD; need at least four FGDs for each material, if possible.	Program themes, images, general issues, materials in early development.	**Advantages** Interaction among participants; potential to cover many topics. **Disadvantages** Group reaction could influence individual response; unable to examine sensitive or difficult topics.
Example: A group of 10 women, ages 18-25, discuss their likes/dislikes on posters [or other materials] about the benefits of birth spacing and if their barriers are addressed.			
Individual Interviews One-on-one (in-person) discussion between the interviewer and the participant.	At least 10 per type of participant (e.g. 10 husbands/10 wives).	Sensitive topic/ content; exchange of confidential information; opportunity to discuss materials more in-depth; low-literacy or hard-to-reach audiences.	**Advantages** Responses not influenced by others; has a wide reach, particularly individuals with limited writing or reading skills. **Disadvantages** Time consuming; expensive; results cannot be generalized.
Example: Interview husbands and wives separately about the challenges of using modern contraceptive methods.			
Intercept Interviews Trained interviewer shows materials and conducts a quick survey with the priority audience in an area (e.g. markets, clinics) they frequently visit.	60-300	Print and audio-visual materials; program hemes and images; need a large number of individual responses.	**Advantages** Ability to reach a larger group and hard-to-reach audiences; low cost. **Disadvantages** Setting may be disruptive; will not capture detailed information; results cannot be generalized.
Example: Young pregnant women are asked about a poster on breastfeeding as they visit the clinic for antenatal care.			
Theater Test Questionnaire tests recollection of messages by participants who view messages together as other programming competes for their attention.	60-300	More common in developed world environment; often used with audio visuals (e.g. radio/TV ads).	**Advantages** Simulates natural exposure to materials and competing messages; allows for quick analysis. **Disadvantages** Time consuming; expensive.
Example: A group of young mothers complete a survey after viewing a TV spot on exclusive breastfeeding along with other spots on the benefits of formula.			
Survey Questionnaire Series of questions used to gather data and measure reaction to materials from many individuals.	20-200	Print and audio- visual materials.	**Advantages** Reach wider audience (e.g. homebound, rural, displaced); less expensive. **Disadvantages** Does not permit detailed feedback on material outside of basic questions in questionnaire.
Example: Young mothers are given a survey to complete after reviewing two alternative versions of a poster on family planning.			
Readability Test (e.g. FOG, SMOG) Determines approximate grade level of the written material.	N/A	Materials for low-literacy and youth; test done during materials development, before pretesting with priority audience.	**Advantages** Fast; inexpensive. **Disadvantages** Does not reflect audience reaction.
Example: A readability test should be done on all materials before they are pretested to make sure they meet the appropriate literacy level of the audience.			
Role Play/ Practice with Exit Interviews IPC agents conduct IPC sessions with real or potential clients. Afterward, a trained interviewer seeks feedback (separately) from the agents and clients.	Individual, couple, or small group, depending on the type of IPC interaction. Ideally the feedback interviews are one-on-one.	New IPC interventions.	**Advantages** Enables early feedback and refinement of both the intervention and IPC agents. **Disadvantages** Each pretest involves at least 4 people; time consuming.
Example: A new peer education program to provide health and family planning support to new mothers.			

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

Step 3: Plan the Pretest

Plan the details of the pretest. This includes identifying the location and meeting site, recruiting participants, identifying facilitators and interviewers, determining incentives, and designing survey questionnaires or focus group discussion guides as needed. Below are some key points to keep in mind during this process:

Location:The priority audience should feel comfortable with the pretesting location. For example, it might be best to conduct the pretest in areas or places (e.g. clinics, churches) where the priority audience is most likely to encounter the materials.

Facilitators/Interviewers/Note-takers: For focus group discussions and in-depth interviews, make sure to identify trained or experienced moderators or facilitators. Trained facilitators can be found at universities, research firms, or partner organizations. If possible, use a facilitator who has similar characteristics (e.g. age, background) to the priority audience. This helps to develop trust and comfort among the participants. It is also important to have a trained note-taker who is familiar with the topic and speaks the local language.

Participants: Use the creative brief to identify key characteristics of the priority audience. Select a sample of participants that match those characteristics to participate in the pretest. Participants should not have had any involvement in the development of your materials or concept testing. The sample size and collection method will depend on the selected pretest method. It is often helpful to over-recruit participants in case some do not show up or complete the pretest. The image below provides some ideas on where to recruit participants. Some organizations have membership lists that can be used for recruitment.

Community or Social Groups

Religious Groups/ Organizations

Schools

Health Facilities

Work Places

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

Cost: Create a budget to reflect costs for the meeting site, travel/accommodation, equipment rental, facilitator/moderator's time, copies of draft materials, stakeholder meetings and incentives. Thoughtful budgeting can help ensure all pretesting costs are accounted for.

Step 4: Develop Pretesting Guide

Develop a pretesting guide that will serve as a reference for keeping the activity on track (*see* for sample pretest questions). The guide should include the following:

- Background information from the (e.g. description of SBCC campaign and priority audience)
- **Pretest** objectives
- **Pretest** plan (description of pretest method, location, participants, facilitators/moderators/note-takers)
- **Pretest** questions
- Plan for use of information gathered

Step 5: Develop Questions

The goal of **pretest** questions is to understand the value of the materials. For example, how effective are the posters in influencing young parents to practice birth spacing? A series of open-ended questions will gather specific details about the audience's preferences. Avoid close-ended (yes or no) questions or those that lead participants to respond in a certain way.

When developing questions, it is helpful to review the **pretesting** elements listed in the introduction. This will ensure questions are effective and meaningful (see example in table below). It is also important to include questions that will capture demographic information (e.g. age, education level, marital status, number of children) and details on how participants spend their day (e.g. media use, social gatherings). The program and creative teams should work together to contribute questions about behavior and design.

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

Pretesting Element	Recommendation	Sample Questions
Attractiveness	Allow participants to compare alternative versions of materials.	• What do you think about the pictures? • What was the first thing that caught your attention?
Comprehension	Try to focus participants on the main idea of the message.	• What do you think this material is telling you to do? • What words/sentences are difficult to read/understand?
Acceptance	Explore issues that could potentially be overlooked.	• Is there anything about the material that you find offensive? • Is there anything about the material that you find annoying?
Relevance	Have participants confirm whether the material is appropriate for them.	• What type of people should read/ watch this? • In what ways are people in the material like/different from you?
Motivation/Persuasion	Explore the effect on behavior and desires.	• What does this material make you want to do? • How likely are you to do that?
Improvement	Find out other ways to enhance the material.	• What new information did you learn? • What do you think is missing?

Step 6: Conduct Pretest

Consent Forms: It is important to obtain participant consent (verbal or written) prior to the pretest. Consent forms are written agreements that show the individual has volunteered to participate in the activity. It also informs the participant of the risks involved (or clearly states there is no risk).

Recording and Note-taking: Some **pretests** use a self-administered questionnaire. When this is not the case, use a pretest answer sheet to note verbal and nonverbal responses to the material. This promotes consistency among interviewers and **pretest** sessions. Include on the data sheet the date, time, place, name and type of material, audience, respondent number, element (e.g. image, text, font, audio/video segment, character), **pretest** questions, and other relevant information as appropriate. **Pretests** can be recorded to help remind or clarify, but recording should not take the place of note-taking (*see* **Resources Section**).

The specifics on how to conduct a **pretest** will differ based on the method. The pretesting guide in the **samples section** outlines how to conduct a Focus Group Discussion (FGD) pretest. For details on how to conduct other types of **pretests** (*see* **Resources Section**).

With any type of **pretest** methods, it is important to use open-ended and probing questions to obtain rich information and avoid unduly influencing respondents.

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

Step 7: Analyze Data and Interpret Results

Analyze the data and interpret the results of the **pretest**. To analyze:

- ❖ Look for trends in responses. If a certain problem or change is mentioned multiple times, it is something that likely needs to be addressed.
- ❖ Determine whether results highlight fundamental flaws with the design, messages, or format. If so, the material may need to be completely redesigned. Otherwise, basic revisions should address the problems.
- ❖ Consult materials development experts about the suggested changes or problems highlighted. Do not feel compelled to make every change participants suggest.

Step 8: Summarize the Results

Communicate the results of the pretest. Write a report outlining the process and the findings. The report should have the following sections:

- ❖ **Background:** What was tested? What were the pretest objectives? Which audience was involved in the process? Why? How? How many participants were involved in the pretest?
- ❖ **Highlights:** Summarize the main points that came up during the testing.
- ❖ **Findings:** Present a complete report on the findings. Where appropriate, describe the participants' reactions, incorporate key quotes and describe which creative ideas and concepts worked the best versus those that were not appealing or effective.
- ❖ **Conclusions:** Describe the patterns that came up and/or the major differences that were observed across the individuals and/or groups.
- ❖ **Recommendations:** Suggest and prioritize revisions for the tested creative ideas, concepts, and/or materials based on the findings and conclusions.

The results should be discussed among those involved with designing the messages, creating the materials and conducting the pretest. This includes program staff, designers, writers, editors, interviewers and note-takers (*see* **Pretest Report Sample** under samples).

Step 9: Revise Materials and Retest

If the results of the pretest indicate that major revisions are needed, a complete redesign may be required. Once the materials have been revised, pretest the new version if budget and time allow. The same questionnaire or FGD guide can be used as before with questions added or changed as needed on the particular areas of concern. This is to make sure the problem from the first design is addressed in the newer version.

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

UNIT V DATA ANALYSIS

Research Report: Introduction, Definition and Report Format

Introduction:

Mostly, research work is presented in a written form. The practical utility of research study depends heavily on the way it is presented to those who are expected to act on the basis of research findings. Research report is a written document containing key aspects of research project.

Research report is a medium to communicate research work with relevant people. It is also a good source of preservation of research work for the future reference. Many times, research findings are not followed because of improper presentation. Preparation of research report is not an easy task. It is an art. It requires a good deal of knowledge, imagination, experience, and expertise. It demands a considerable time and money.

Definitions:

1. In simple words:

Research report is the systematic, articulate, and orderly presentation of research work in a written form.

2. We can also define the term as:

Research report is a research document that contains basic aspects of the research project.

3. In the same way, we can say:

Research report involves relevant information on the research work carried out. It may be in form of hand-written, typed, or computerized.

REPORT FORMAT:

There is no one best format for all reports. Format depends on several relevant variables. One must employ a suitable format to create desirable impression with clarity. Report must be attractive. It should be written systematically and bound carefully. A report must use the format (often called structure) that best fit the needs and wants of its readers. Normally, following format is suggested as a basic outline, which has sufficient flexibly to meet the most situations.

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

Research report is divided into three parts / Content as:

I. First Part (Formality Part):

(i) Cover page

(ii) Title page

(iii) Certificate or statement

(iv) Index (brief contents)

(v) Table of contents (detailed index)

(vi) Acknowledgement

(vii) List of tables and figures used

(viii) Preface/forwarding/introduction

(ix) Summary report

II. Main Report (Central Part of Report):

(i) Statement of objectives

(ii) Methodology and research design

(iii) Types of data and its sources

(iv) Sampling decisions

(v) Data collection methods

(vi) Data collection tools

(vii) Fieldwork

(viii) Analysis and interpretation (including tables, charts, figures, etc.)

(ix) Findings

(x) Limitations

(xi) Conclusions and recommendations

(xii) Any other relevant detail

III. Appendix (Additional Details):

(i) Copies of forms used

(ii) Tables not included in findings

(iii) A copy of questionnaire

(iv) Detail of sampling and rate of response

(v) Statement of expenses

(vi) Bibliography – list of books, magazines, journals, and other reports

(vii) Any other relevant information

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

Key Considerations/Factors:

While preparing research report, following issues must be considered:

(i) Objectives

(ii) Type of problem/subject

(iii) Nature and type of research

(iv) Audience or users of research work

(v) Size of report

(vi) Form of writing – handwritten, typed, or computerized.

(vii) Time and cost

(viii) Language

(ix) Contents of report

(x) Order of contents

(xi) Number of copies

(xii) Format – type and size of paper; lengths width, and depth of report; and pattern of writing including paragraph, indent, numbering, font size and type, colouring, etc.

(xiii) Binding (for soft, and, particularly, for hard copy) – type, quality of material, colour, etc., related issues.

PRECAUTION FOR WRITING RESEARCH REPORT

Which doe this task efficiently and effectively. Research report must be prepared by keeping the following precautions in view:

1. **Length of the report:** While determining the length of the report (since research reports vary greatly in length), one should keep in view the fact that it should be long enough to cover the subject but short enough to maintain interest. In fact, report writing should not be a means to learning more and more about less and less.

2. **Interesting:** A research report should not, if this can be availed, be dull, it should be such as to sustain reader's interest.

3. **Use of abstract terminology and Jargon:** Abstract terminology and technical Jargon should be avoided in research report. The report should be able to convey the matter as simply as possible. This in other words, means that report should be written in and objective style in simple language, avoiding, expression such as, "it seems", "There may be" and the like.

4. **Presentation of the findings:** Readers are often interested in acquiring a quick knowledge of the main findings and as such the report must provide a ready availability of the findings. for this purpose, charts, graphs and the statistical tables

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

may be used for the various results in the main report in addition to the summary of important findings.

5. **Presentation of the report:** The layout of the report should be well thought out and must be appropriate and in accordance with objective of the research problems.

6. **Writing of the Report:** The reports should be free from grammatical mistakes and must be prepared strictly in accordance with the techniques of composition footnotes, documentation, proper punctuation and use of abbreviations in footnotes.

7. **Logical presentation of the report:** The report must present the logical analysis of the subject matter. it must reflect a structure wherein the different pieces of analysis relating to the research problem fit well.

8. **Originality in writing report:** A research report should show originality and should necessarily be an attempt to solve some intellectual problem. it must contribute to the solution of a problem and must add to the store of knowledge.

9. **Plan for future research and implications:** Towards the end, the report must also state the policy implications relating to the problem under consideration. It is usually considered desirable if the report makes a forecast of the probable future of the subject concerned and indicates the kinds of research still needs to be done in that particular field.

10. **Appendices:** Appendices should be enlisted in respect of all the technical data in the report.

11. **Bibliography:** Bibliography of sources consulted is a must for a good report and must necessarily be given.

12. **Index:** Index is also considered an essential part of a good report and as such must be prepared and appended at the end.

13. **Appearance:** Report must be attractive in appearance, neat and clean, whether types or printed.

14. **Stating confidence limits:** Calculated confidence limits must be mentioned and the various constraints experienced in conducting the research study may also be stated in the report.

15. **Introduction:** Objective of the study, the nature of the problem, the methods employed and the analysis techniques adopted must all be clearly stated in the beginning of the report in the form of introduction.

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

STEPS IN REPORT WRITING IN RESEARCH METHODOLOGY

Research reports are the product of slow, painstaking, accurate inductive work. The usual steps involved in writing report are:

1. Logical analysis of the subject-matter;
2. Preparation of the final outline;
3. Preparation of the rough draft;
4. Rewriting and polishing;
5. Preparation of the final bibliography; and
6. Writing the final draft.

Though all these steps are self explanatory, yet a brief mention of each one of these will be appropriate for better understanding.

1. Logical analysis of the subject matter: It is the first step which is primarily concerned with the development of a subject. There are two ways in which to develop a subject

a. logically and
b. chronologically.

The logical development is made on the basis of mental connections and associations between the one thing and another by means of analysis. Logical treatment often consists in developing the material from the simple possible to the most complex structures. Chronological development is based on a connection or sequence in time or occurrence. The directions for doing or making something usually follow the chronological order.

2. Preparation of the final outline: It is the next step in writing the research report "Outlines are the framework upon which long written works are constructed. They are an aid to the logical organization of the material and a reminder of the points to be stressed in the report."

3. Preparation of the rough draft: This follows the logical analysis of the subject and the preparation of the final outline. Such a step is of utmost importance for the researcher now sits to write down what he has done in the context of his research study. He will write down the procedure adopted by him in collecting the material for his study along with various limitations faced by him, the technique of analysis adopted by him, the broad findings and generalizations and the various suggestions he wants to offer regarding the problem concerned.

4. Rewriting and polishing of the rough draft: This step happens to be most difficult part of all formal writing. Usually this step requires more time than the writing of the rough draft. The careful revision makes the difference between a mediocre and a good piece of writing. While rewriting and polishing, one should check the report for weaknesses in logical

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

development or presentation. The researcher should also "see whether or not the material, as it is presented, has unity and cohesion; does the report stand upright and firm and exhibit a definite pattern, like a marble arch? Or does it resemble an old wall of moldering cement and loose brick." In addition the researcher should give due attention to the fact that in his rough draft he has been consistent or not. He should check the mechanics of writing—grammar, spelling and usage.

5. Preparation of the final bibliography: Next in order comes the task of the preparation of the final bibliography. The bibliography, which is generally appended to the research report, is a list of books in some way pertinent to the research which has been done. It should contain all those works which the researcher has consulted. The bibliography should be arranged alphabetically and may be divided into two parts; the first part may contain the names of books and pamphlets, and the second part may contain the names of magazine and newspaper articles. Generally, this pattern of bibliography is considered convenient and satisfactory from the point of view of reader, though it is not the only way of presenting bibliography. The entries in bibliography should be made adopting the following order:

For books and pamphlets the order may be as under:

1. Name of author, last name first.
2. Title, underlined to indicate italics.
3. Place, publisher, and date of publication.
4. Number of volumes.

Example

Kothari, C.R., *Quantitative Techniques,* New Delhi, Vikas Publishing House Pvt. Ltd., 1978.

For magazines and newspapers the order may be as under:

1. Name of the author, last name first.
2. Title of article, in quotation marks.
3. Name of periodical, underlined to indicate italics.
4. The volume or volume and number.
5. The date of the issue.
6. The pagination.

Example

Robert V. Roosa, "Coping with Short-term International Money Flows", *The Banker,* London, September, 1971, p. 995.

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,

The above examples are just the samples for bibliography entries and may be used, but one should also remember that they are not the only acceptable forms. The only thing important is that, whatever method one selects, it must remain consistent.

6. Writing the final draft: This constitutes the last step. The final draft should be written in a concise and objective style and in simple language, avoiding vague expressions such as "it seems", "there may be", and the like ones. While writing the final draft, the researcher must avoid abstract terminology and technical jargon. Illustrations and examples based on common experiences must be incorporated in the final draft as they happen to be most effective in communicating the research findings to others. A research report should not be dull, but must enthuse people and maintain interest and must show originality. It must be remembered that every report should be an attempt to solve some intellectual problem and must contribute to the solution of a problem and must add to the knowledge of both the researcher and the reader.

BOOKS FOR REFERENCE

- ❖ C.R. Kothari : Research Methodology, New Age International (P) Ltd., Publishers, New Delhi.
- ❖ P.Saravanavel : Research Methodology, Kitab Mahal Publication, Allahabad.
- ❖ P.Ravilochanan : Research Methodology, Margpham Publication, Chennai.

Dr.S.Ezhil Raji, M.Com., M.Phil., Ph.D.,