

Introduction to Research Methods

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Introduction to Research Methods

Lecture 7



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Learning Outcomes

1. Identify and distinguish between dichotomous, multiple dichotomous, and rank order questions.
2. Understand the process of developing a Likert scale and its application in research..
3. Comprehend the use and analysis of semantic differential scales in assessing subjective meanings..

Learning Outcomes

4. Recognize the purposes and appropriate usage of open-ended questions in research questionnaires.
5. Differentiate between paper-based, electronic, and researcher-administered questionnaires and their respective advantages.
6. Learn techniques to prevent pattern responses and ensure the reliability of questionnaire data.

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Introduction to Questionnaire Design

- Questionnaires are the most popular data collection tools in research involving human subjects.
- Common sense plays a crucial role in questionnaire design, but it can often be overlooked by researchers eager to gather data.
- This chapter emphasizes the importance of using common sense effectively in designing questionnaires.



Reasons for Using Questionnaires

Advantages

- Reach a large and geographically dispersed audience at a low cost.
- Gather data from a larger sample compared to other techniques.
- Offer anonymity and confidentiality to respondents.
- Data analysis can be pre-determined and coded before distribution.

Common Misconception

- New researchers often choose questionnaires to avoid direct interaction, but this is not a credible reason for research.

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Choosing Questionnaires Wisely

Purpose of Investigation

- Identify the goal of your research and what you hope to achieve with the data.
- Base the choice of data collection method on the aim of the research.

Limitations

- Lack of direct interaction with respondents is a significant limitation.



Designing Questionnaires

Challenges

- Questionnaires often have a low response rate unless administered personally.
- Questionnaires need to be clear and standalone, as the researcher will not be present to assist respondents.

Importance of Design

- Appearance and content are crucial for encouraging responses.
- Well-designed questionnaires lead to high response rates and detailed data.
- Poor design can discourage participation and increase measurement error.

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Key Considerations in Design

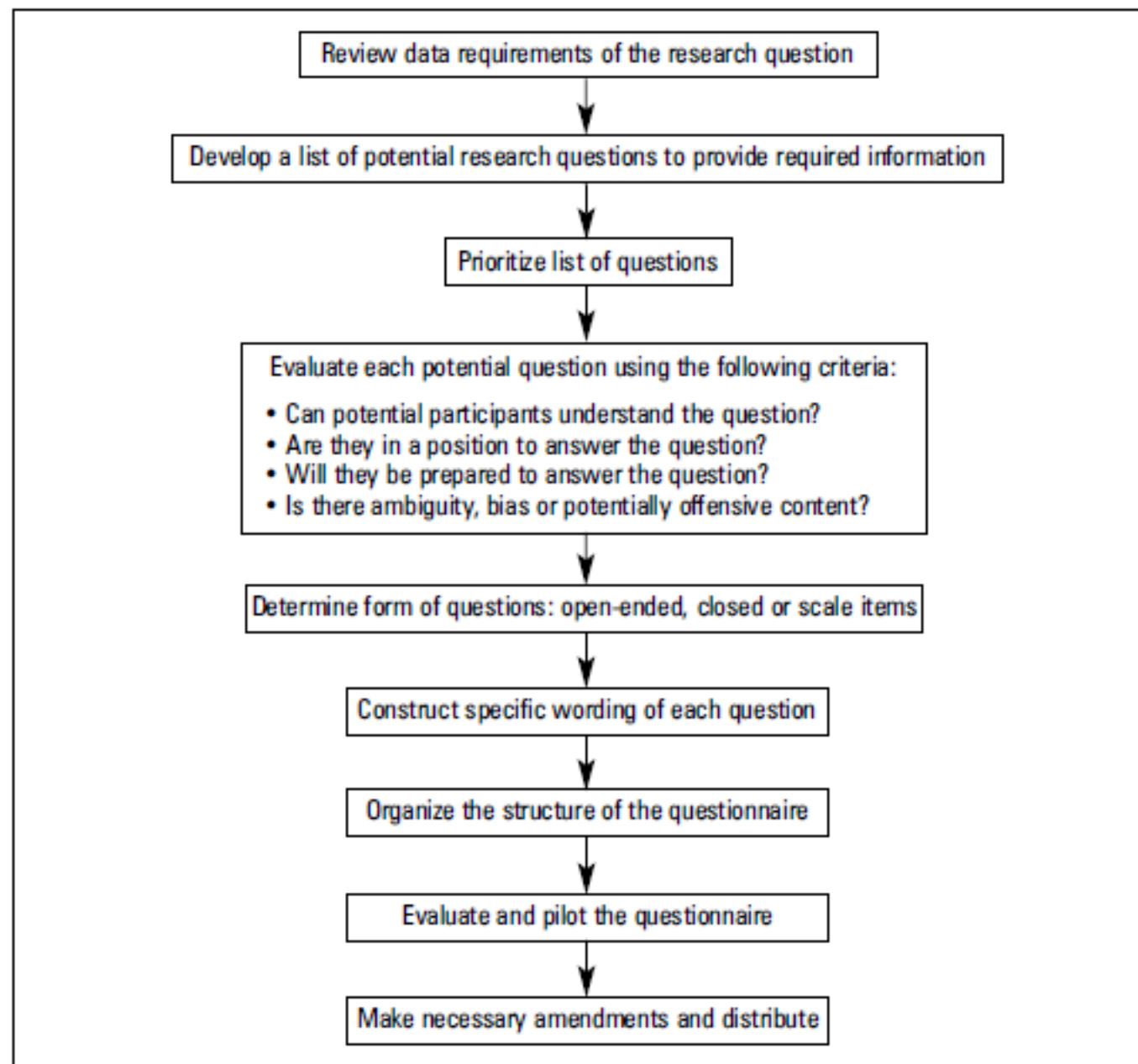
Steps in Designing a Questionnaire

- Figure 1 outlines essential steps.
- Never omit any step, regardless of time constraints.

Impact of Design

- Adequate design can mean the difference between a successful and a failed research effort.





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Effective Questionnaire Design

Holistic Approach

- Ensure the overall picture is clear.

Introduction

- Start with a brief intro and clear, simple instructions.

Conciseness

- Keep the questionnaire concise.

Clarity

- Ask clear questions, avoiding ambiguity, bias, and jargon unless necessary.



Effective Questionnaire Design

- Ensure it can be completed in a reasonable time.

Neutral Questions

- Avoid leading questions and potentially offensive questions.

Logical Order

- Maintain a logical flow with clear pathways.

Appearance

- Make it uncluttered and inviting.

Data Processing

- Ensure data is easily processed; plan your analysis beforehand.



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General Points to Remember

Appropriate Title

- Give the questionnaire a suitable title.

Covering Letter

- Include a letter with topic details, purpose, data usage, contact info, and confidentiality statement.
- Avoid trivial or antagonizing statements.
- Use for anonymous questionnaires, ensuring privacy.



Developing Questions

Understandability

- Questions must be easily understood and answered.

Interpretation Risk

- Clear questions to you might not be clear to others.

Explanations

- Redundant or repetitive explanations can improve response rates.



Structuring the Questionnaire

Friendly Start

- Begin with unthreatening, easy questions.

Demographic Questions

- Save for the end to avoid discouraging respondents.

Usefulness

- Include demographic questions only if they are relevant to your analysis.



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Question Order and Variety

Engaging Questions

- Start with simple questions, then progress to complex ones.

Opinion Questions

- Place them at least a third of the way through.

Variety

- Include different types of questions to maintain interest and depth.



Question Types

Dichotomous Questions

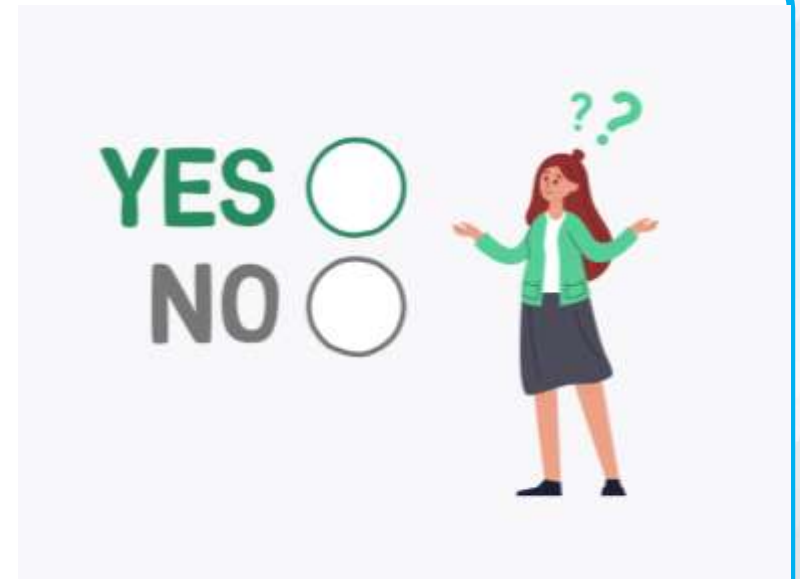
Avoid long lists; they can be boring and superficial.

Open-ended Questions

Limit these as they require more thought and time.

Verbal vs. Written Responses

Verbal responses are easier to give than written ones.



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Closed Questions

Categories

- Dichotomous questions
- Multiple dichotomous questions
- Rank order questions



Dichotomous questions

Definition

Allows respondents to choose between two possible responses, often with a neutral option.

Considerations

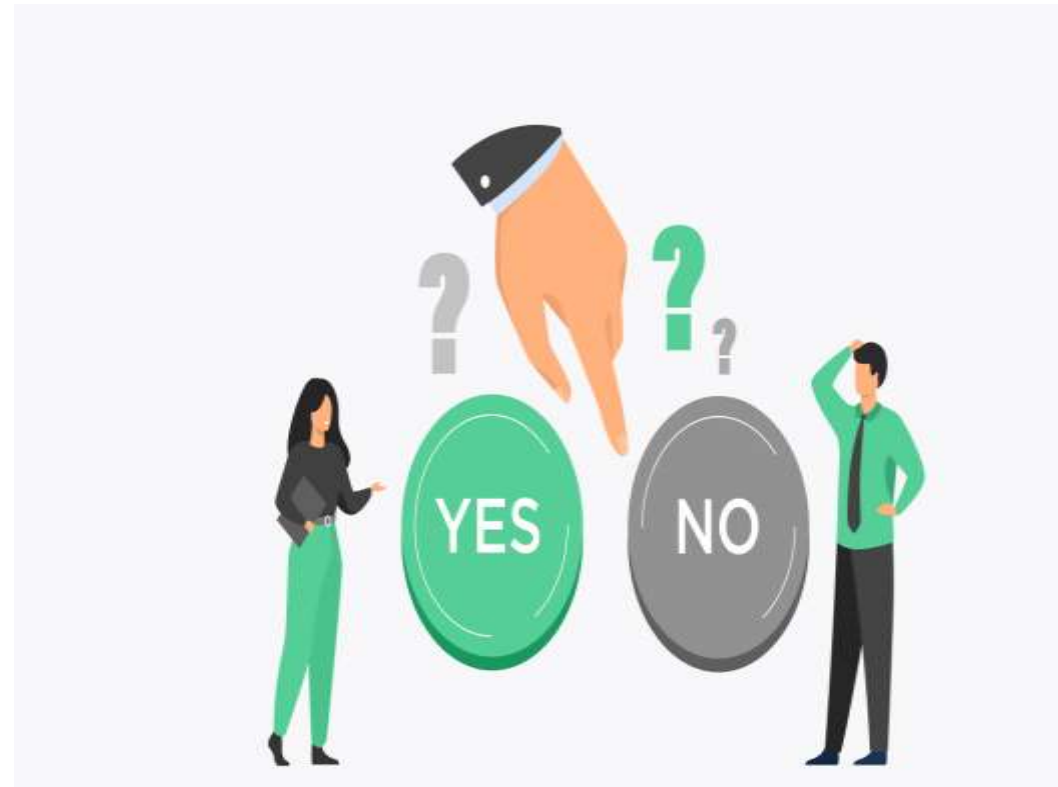
Must be exhaustive to cover all possible respondent conditions.



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Example

- One example of a dichotomous question in a survey could be, "Have you ever visited our website?" with response options limited to "yes" or "no."



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Multiple Dichotomous Questions

Definition

Provides a list of possible responses, allowing selection of any number of choices.

Analysis

Consider data harvesting and coding during construction



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Example

Which dessert have you eaten in the last year?

☒ Cheesecake

☒ Ice cream

☐ Jello

☐ Cream Brulee

☐ Kremes

☐ None of the above

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Rank Order Question

Definition

- Respondents rate or rank each option, providing insights into relative preferences.

Limitation

- Avoid long lists (more than 5 items)



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Example

2. Rank the following in order of preference



Football



Rugby



Cricket



Boxing

Scale Questions

Definition

- Attitudinal measures included in questionnaires, requiring detailed preparation.

Advantages

- Offer uniformity of response and ease of coding.

Disadvantages:

- Can appear superficial and force inappropriate answers.

Types of Scale Questions

Unidimensional

- Measure a single dimension.

Multidimensional

- Measure across cognitive, behavioral, and affective dimensions.

Common Examples

- Likert scale

The Likert Scale

Definition

A bipolar scaling technique gauging intensity of attitude.

Example

"Indicate your level of agreement with the following statement."

'Rate your level of agreement with each statement'

	Strongly disagree	Disagree	Neither agree nor disagree	Agree	Strongly Agree
Chocolate ice cream is delicious					
Chocolate ice cream is satisfying					
Chocolate ice cream is indulgent					

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Developing a Likert Scale

Purpose: Measure attitudes using structured responses

Components

- Attitude statements
- Response system
- Random arrangement of statements
- Random test sample
- Scoring and ranking
- Statement analysis
- Final administration

Constructing Attitude Statements

Source

Literature review and research objectives

Purpose

Relate to the research question

Example Statements

Positive: "I enjoy using new technologies."

Negative: "I find new technologies difficult to use."

Structuring the Response System

EXAMPLE OF A FIVE-POINT LIKERT SCALE

Strongly disagree	Disagree	Neutral	Agree	Strongly agree
1	2	3	4	5

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Arranging Statements Randomly

Mixing Positive and Negative Statements

Prevents Pattern Responses

Randomly mix positive and negative statements to prevent respondents from falling into a habit of consistently agreeing or disagreeing without carefully considering each statement.

Ensures Thoughtful Responses

Encourages respondents to think about each question individually rather than following a predictable pattern.

Selecting a Random Test Sample

Size Recommendation

Oppenheim (1992): Suggests a sample size of 100 people.

Dissertation Research: A smaller sample may be sufficient depending on the scope of your study.

Test Criteria

Ask the sample group to rate the statements based on their interest and relevance to the topic, not their own opinion.

Scoring and Ranking Responses

Scoring System

- Assign weights to responses (e.g., strongly agree = 5, strongly disagree = 1).

Ranking

- Rank respondents' scores from highest to lowest based on their total score.
- Their total score is the sum of their responses to all statements.

Statement Analysis and Discriminative Power

Discriminative Power (DP)

- Calculate the difference in weighted means between the upper and lower quartiles of respondents.

Purpose

- Select statements with the highest DP for inclusion in your final list.

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Process

- Rank all respondents' scores.
- Calculate the mean score for the top 25% (upper quartile) and the bottom 25% (lower quartile).
- The difference between these means is the DP for each statement.

Final Likert Scale Construction

Number of Statements

Include between 10 and 15 statements in your final questionnaire.

Testing

Ensure all statements have been tested for their importance and relevance to your topic.

Mix Statements

Include a mix of positive and negative statements to maintain respondent engagement and accuracy.

MACH-IV questionnaire

All in all, it is better to be humble and honest than to be important and dishonest.

Strongly disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly agree

☐

Honesty is the best policy in all cases

Strongly disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly agree

☐

It is hard to get ahead without cutting corners here and there.

Strongly disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly agree

☐

It is safest to assume that all people have a vicious streak and it will come out when they are given a chance.

Strongly disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly agree

☐

Never tell anyone the real reason you did something unless it is useful to do so.

Strongly disagree

☐

Disagree

☐

Neutral

☐

Agree

☐

Strongly agree

☐

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Administering the Likert Scale

Research Sample

- Administer the final scale to your selected respondents.

Objective

- Measure the attitude of each respondent in relation to others.

Limitations

- Remember that Likert scales produce ordinal data, which means that only non-parametric tests can be used for analysis as they do not assume normal distribution of responses.

The Semantic Differential Scale

Definition

- The semantic differential scale, introduced by Osgood, Suci, and Tannenbaum (1957), is a method for measuring attitudes that captures the connotation associated with a concept through bipolar adjectives.

Usage

- This scale is used to assess the subjective meaning of a concept by having respondents choose a point along a continuum between two opposite adjectives.

SEMANTIC DIFFERENTIAL SCALE

Democratic party

Bad __:__:__:__:__:x__ Good

Cruel __:__:__:__:__:x__ Kind

Unpleasant __:__:__:__:x__: Pleasant

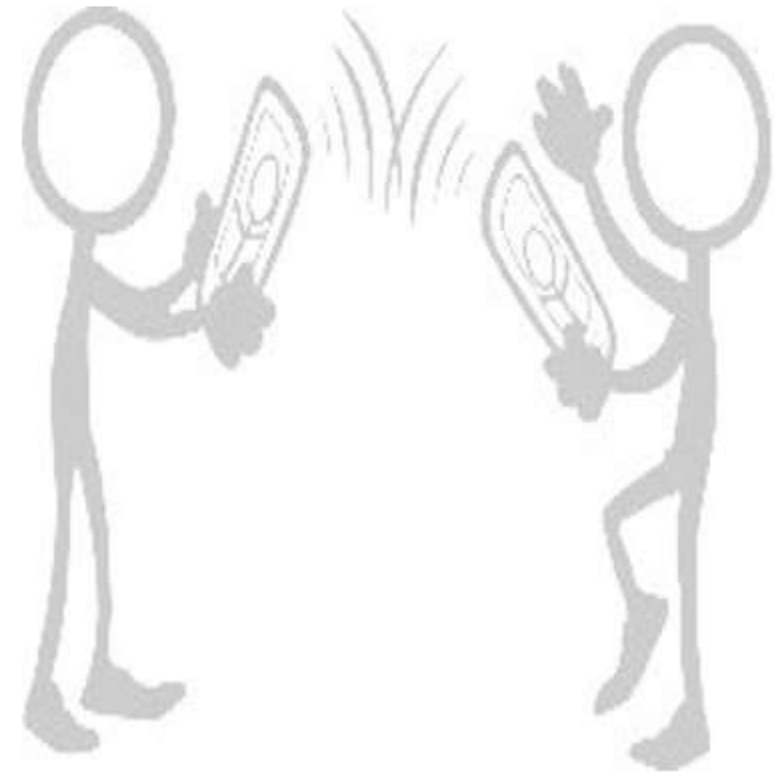
Unfair __:__:__:__:__:x__ Fair

Dirty __:__:__:__:__:x__ Clean

Negative __:__:__:__:x__: Positive

Foolish __:__:__:__:__:x__ Wise

1	2	3	4	5	6	7
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Structure

Adjectives

- The scale involves pairs of bipolar adjectives (e.g., valuable-useless, helpful-unhelpful).

Instructions

- Respondents are asked to place a tick at the point between each pair that best represents their feelings about the concept.

Construction

Simplicity

- Constructing a semantic differential scale is straightforward. You select the concept to be assessed and create a list of relevant bipolar adjectives.

Outcome

- The results can be a simple comparison between respondents or involve more complex factor analysis to explore relationships between dimensions.

Open-Ended Questions

Description

- Open-ended questions allow respondents to provide detailed and personal answers without predefined options.

Purpose

- These questions are used to gain in-depth insights and individual perspectives on a topic.

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Advantages and Disadvantages

Advantages

- **Detailed Responses:** They offer respondents the freedom to express their thoughts fully.
- **Unanticipated Insights:** Can reveal new aspects of an issue that the researcher hadn't considered.

Disadvantages

- **Analysis Challenges:** Coding and analyzing open-ended responses can be difficult and time-consuming.
- **Response Rate:** Respondents may skip these questions or provide minimal answers if they find them too demanding.

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Usage Guidelines

Appropriate Situations

- Use open-ended questions when you need more extensive or individualized data, or when the range of possible answers is unknown.

Placement and Phrasing

- Avoid starting with open-ended questions to prevent respondents from feeling overwhelmed.
- Distribute them throughout the questionnaire to maintain engagement.
- Ensure questions cannot be answered with a simple "yes" or "no".
- Provide sufficient space for responses on paper-based questionnaires.

General Open Ended Questions

- What would happen if...?
- I wonder...
- What do you think about...?
- In what way...?
- Tell me about...?
- What would you do...?
- How can we...?
- How did you...?
- In what way...?
- What do you suppose...?

Forms of Questionnaires

Paper-Based Postal Questionnaires

- **Distribution Methods:** Can be mailed, handed out at events, or left in prominent locations.
- **Cost and Return Rate:** Postal questionnaires are costly due to postage, and rely heavily on respondents' willingness to complete and return them. Handing them out in person is typically more effective.

Electronic Questionnaires

Online Questionnaires: Located on a web page and filled out online. These can be convenient but may limit your sample population and pose challenges with multiple submissions and browser compatibility.

Email Questionnaires: Sent and returned via email. While easier for some respondents, they can compromise anonymity.

Researcher-Administered Questionnaires

- **High Response Rate:** These usually generate the highest response rates as the researcher directly engages with respondents and fills out the questionnaire based on their answers.
- **Example:** Market researchers conducting street interviews.
- **Considerations:** Ethical and legal permissions are required, and selecting the appropriate location and time is crucial to reach the desired sample size and composition.



Thank You