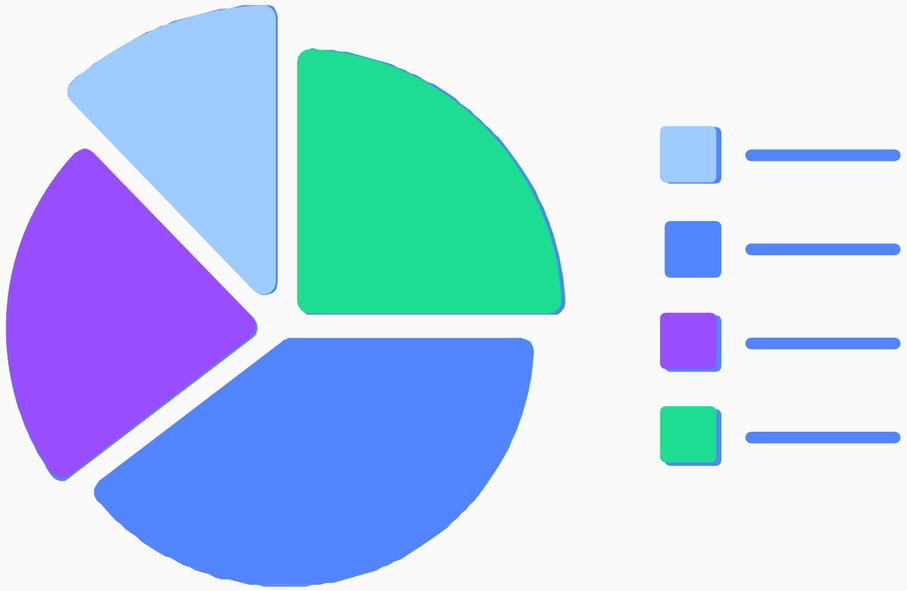
RESEARCH METHODOLOGY FOR FINAL YEAR PROJECT

ASSOC. PROF. DR. MAZLINA MAHDZAR
Faculty of Hotel & Tourism Management,
Universiti Teknologi MARA
nina@uitm.edu.my

INTRODUCTION TO RESEARCH



INTRODUCTION TO RESEARCH

Definition of Research

Research is an organized, systematic, critical, objective, scientific inquiry or investigation into a specific problem, undertaken to find answers or solutions to the problem.

Purpose of Research

1. The exploration of a topic
2. The description of a phenomena
3. The explanation of behaviour or phenomena

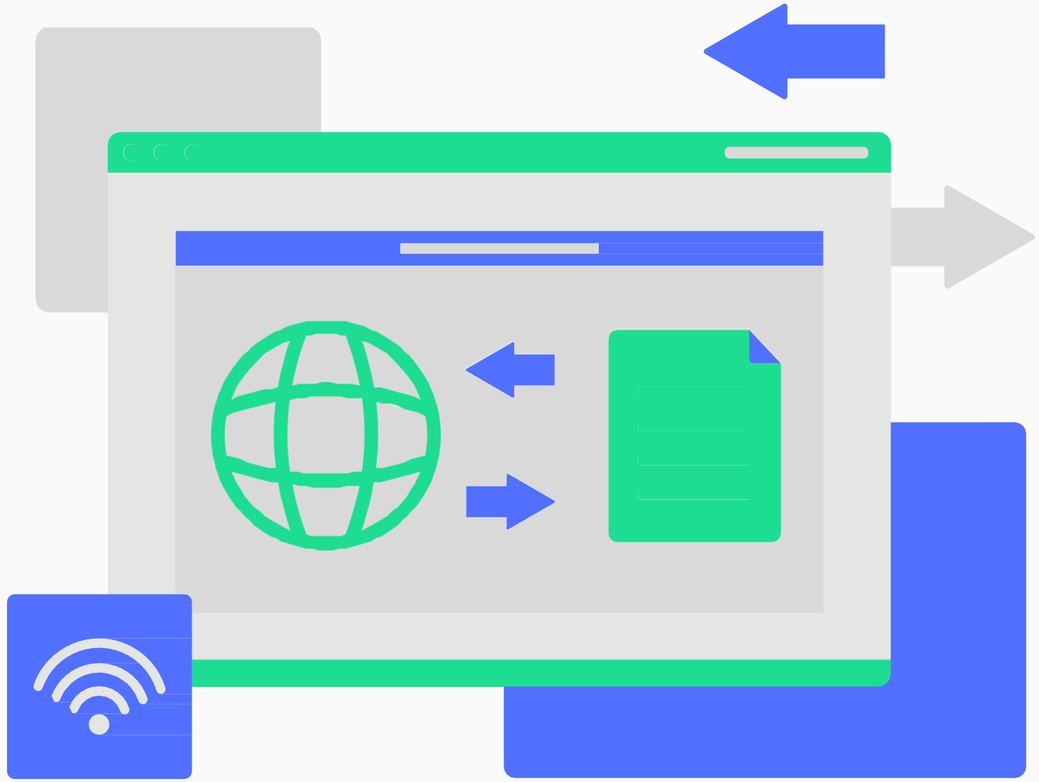
Types of Research Functions

1) **Basic/Pure research** – advancing specific knowledge, theoretically based and obtains data to support theories or related hypothesis about social phenomena and findings used by someone else other than the researcher
2) **Applied research** – focused on specific problem might link to social phenomena and findings usually used by the researcher

Research Ethics

Ethics in research refers to a code of conduct or expected societal norm of behaviour while conducting research.

OVERVIEW OF THE RESEARCH PROCESS



OVERVIEW OF THE RESEARCH PROCESS

Stages in the Research Process

1. Defining the problem
2. Choosing a suitable research design
3. Choosing a suitable sampling design
4. Gathering the data
5. Processing and analyzing the data
6. Preparing the report

Process of Problem Definition

1. Ascertain the objectives of the person who requested the project

2. Understand the background of the problem

3. Isolate and identify the problem instead of symptoms

4. Determine the unit of analysis

5. Determine the relevant variables (Categorical/Discrete/Continuous/Dependent/Independent/Moderating)

- **Quantitative research is concerned with measurement of variables and relationship between them.**
  Types of Variables:

1. **Categorical Variable:** Any variable that has a number of distinct values or classification value. Eg: Gender and job level
2. **Discrete Variable:** Any variable that has a number of distinct exact values. Eg: Number of white Perodua Myvi
3. **Continuous Variable:** Any variable that can assume any value within a specific range. Eg: Age, height, and weight
4. **Dependent Variable:** A variable that is to be predicted or explained. Eg: Exam scores and income level
5. **Independent Variable:** A variable expected to influence the dependent variable. Eg: Gender and education level
6. **Moderating Variable:** A variable that has a strong contingent effect on the IV-DV relationship that modifies the original relationship

Formulating the Research Questions

Research question is the researcher's translation of the research problem into a specific need for inquiry.

E.g.: A company made the following statement to define a training problem for their employees on network personal computers thus lead to the following research question:

1. How familiar are employees with various software application for personal computers
2. Is there any difference in computer knowledge between male and female

Formulating the Research Hypotheses

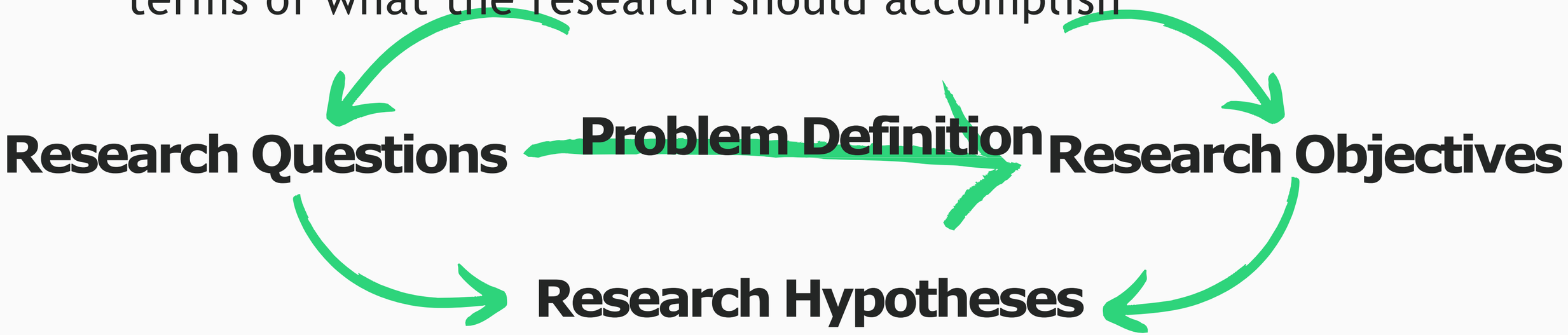
Research hypothesis is an unproven proposition or supposition that tentatively explains certain facts or phenomena.

E.g.: A manager may hypothesize salespersons who show the highest level of job satisfaction will be the most productive salesperson.

Formulating the Research Objectives

- **Research objectives** are the statements that the research project will attempt to achieve in measurable terms and defined standards.

  It explains the purpose of research in measurement terms of what the research should accomplish



Reviewing the Literature

- **The Values of a Literature Review:**

1) It helps researchers glean the ideas of others interested in a particular research question.
2) It helps researchers to see what the results of other studies could have been.

- **Types of Resources:**

1) General references
2) Primary sources
3) Secondary sources
4) Internet/Computer sources (electronic database, google search engine websites)

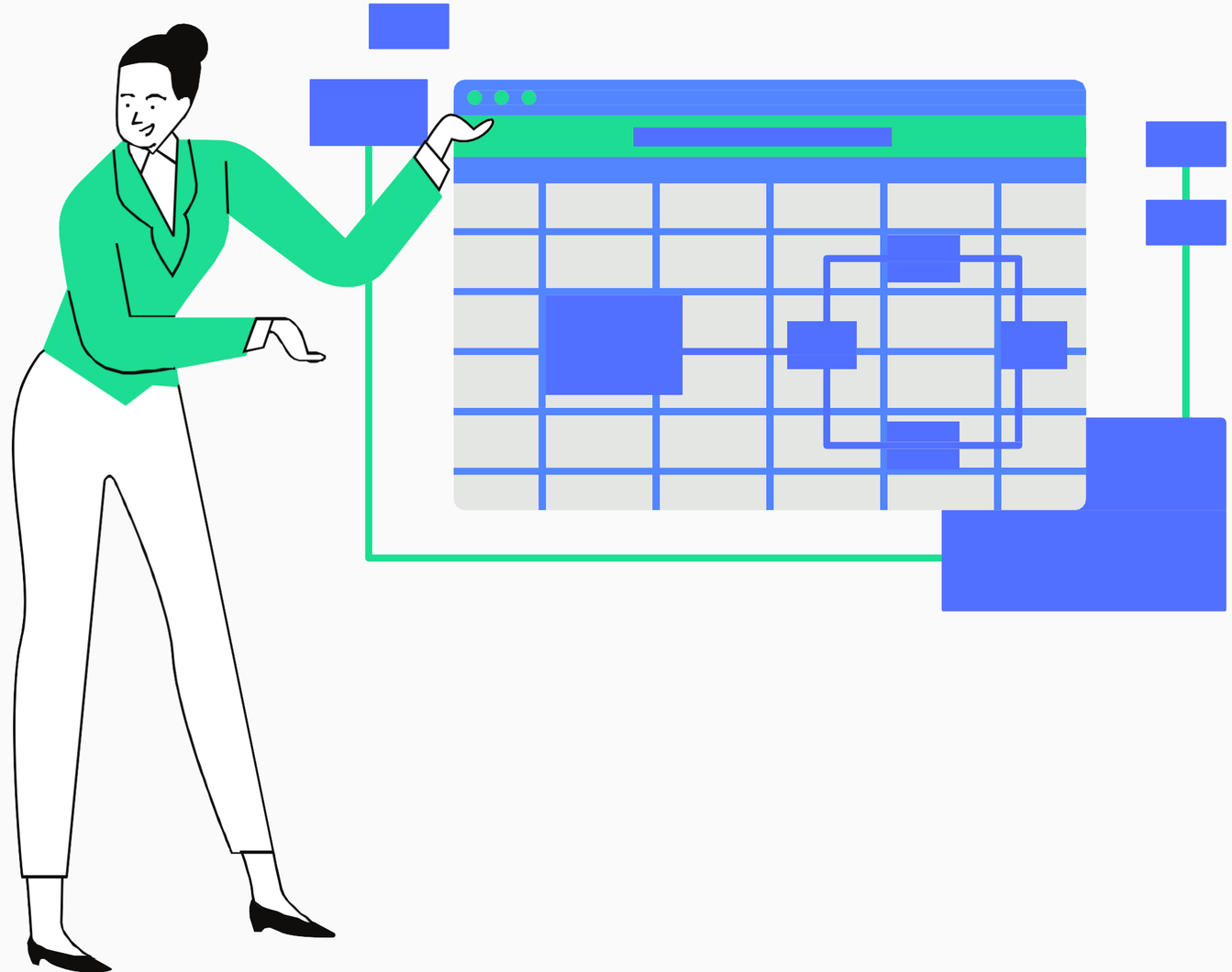
- **Steps Involved in a Literature Search:**

1)Define the research problem as precisely as possible
2)Use relevant secondary sources.
3)Select and use one or two appropriate general reference works.
4)Formulate search terms (key words or phrases) pertinent to the problem/question of interest.
5)Search the general references for relevant primary sources.
6)Obtain and read relevant primary sources; note and summarize key points in the sources.

How articles should be read

1. Read abstract or summary first to see is the article worth reading
2. Read bibliographic data
3. Take notes on article concentrating on points such as ***problem statement***, ***hypothesis/objectives***, ***procedures***, ***findings***, ***conclusions***

THEORETICAL FRAMEWORK



THEORETICAL FRAMEWORK

The Need for a Theoretical Framework

- **Theoretical framework** is a conceptual model of how one theorizes or makes logical sense of the relationships among the several factors which are identified as crucial to the problem.

- It also discusses the interrelationships among the variables deemed integral to the dynamics of the situation being investigated.

The Components of the Theoretical Framework

- Five basic features of theoretical framework:

1) The variables are deemed relevant to the study should be clearly identified and labeled in the discussions.
2) The discussions should state how two or more variables are related to one another.
3) There should be a sign as to whether the nature or direction of the relationships of the findings to be positive or negative.
4) There should be a clear explanation on why we would expect these relationships to exist.
5) A schematic diagram of the theoretical framework should be given to help the readers to see clearly and easily comprehend the theorized relationships.

Variables in the Theoretical Framework

1) Dependent Variable (Criterion Variable)
2) Independent Variable (Predictor Variable)
3) Moderating Variable

Identifying the Research Problem

- Researchers need to identify the research problems prior to developing the theoretical framework and after the interview as well as literature survey. Problem statement is a clear, precise statement of the question/issue that is to be investigated with a goal to of finding a solution.

Example:
A manager believes that positive attitude towards work and sufficient training would increase the production level of workers. Therefore, dependent variable is production level, while attitude and training are independent variables

The relationship between the dependent and independent variable are illustrated below.

Independent variables **Dependent variable**

Stating the Research Questions

- Research questions are derived from the problem statement, and they are crucial in a study to state the research questions clearly and to have well-formulated hypotheses.

Identifying the Research Hypotheses

Statement of Hypotheses Formats:

1) Proposition e.g. Employee are more healthy will take sick leave less frequently
2) Directional Hypotheses. E.g. The greater the stress experienced in the
   - job, the lower the job satisfaction of employees
3) Non-directional Hypotheses. E.g. There is a relationship between the categories of age and job satisfaction level
4) Null Hypothesis. E.g. H0: There is no correlation between stress and job satisfaction
5) Alternative Hypothesis. H1: There is a correlations between stress and job satisfaction

Identifying the Research Objectives

- **Research objectives** are statements that describe the purpose of the research in measurable terms and defined standards. It is the statement of what the research should accomplish and it is also derived from the problem definition.
  E.g. 1. To examine the relationship between heart rate and systolic blood pressure

Research Proposal

- A proposal is also known as a work plan, prospectus, outline, statement of intent, or draft plan. The purpose of research proposal is to present the problem to be research and its importance. The advantage is it allows the researcher to plan and review the project's step.

- **Structuring the research proposal:**

1. Abstract
2. Problem Statement/Problem Definition
3. Research Objectives
4. Literature Review
5. Importance/Significance of Study
6. Research Design
7. Data Analysis

RESEARCH DESIGN

RESEARCH DESIGN

Exploratory Research

- **Exploratory research** is undertaken at the beginning of learning about a topic where little or no previous knowledge exists.

- **The goals of exploratory research:**

1) To become familiar with basic, facts, people
2) To develop mental picture of topic
3) To generate initial ideas, tentative theories
4) To determine feasibility of doing research
5) To formulate questions and refine ideas for research
6) To develop techniques and direction research should take

- **Four basic categories of exploratory techniques:**

1) *Secondary data analysis* – Data previously collected and assembled
2) *Pilot studies* – Collects data from ultimate subject of research to serve as a guide for the larger study
3) *Case studies* – Technique intensively investigate one or few situations similar to the researcher's problem situation (focus group)
4) *Experience surveys* – Surveying individuals who are knowledgeable about particular research problem

Descriptive Research

- **Descriptive research** is used when researchers have a clearer idea about the social phenomenon or behaviour under investigation. It is designed to provide details about a situation, setting or social relationship. It also describes characteristics of a population or a phenomenon and determine the answers to who, what, when , where and how questions.

Explanatory Research (Causal Research)

- **Explanatory research** is conducted with situations, groups, events of issues about which a certain level of knowledge/understanding already exists. It aims to understand ‘why’ things occur and to examine cause and effect relationships.

Experimental Research

- **Experimental research** follows the principles found in natural sciences. This research involves experiments that manipulate sets of conditions either in an artificial laboratory setting or in real life and then the differences are measured according to how people respond in those situations.
  e.g. cause and effect relationship issues

Quantitative and Qualitative Research

- **Quantitative research** involves the collecting of data in the form of numbers. It is usually associated with empirical social scientific approaches to measurement.

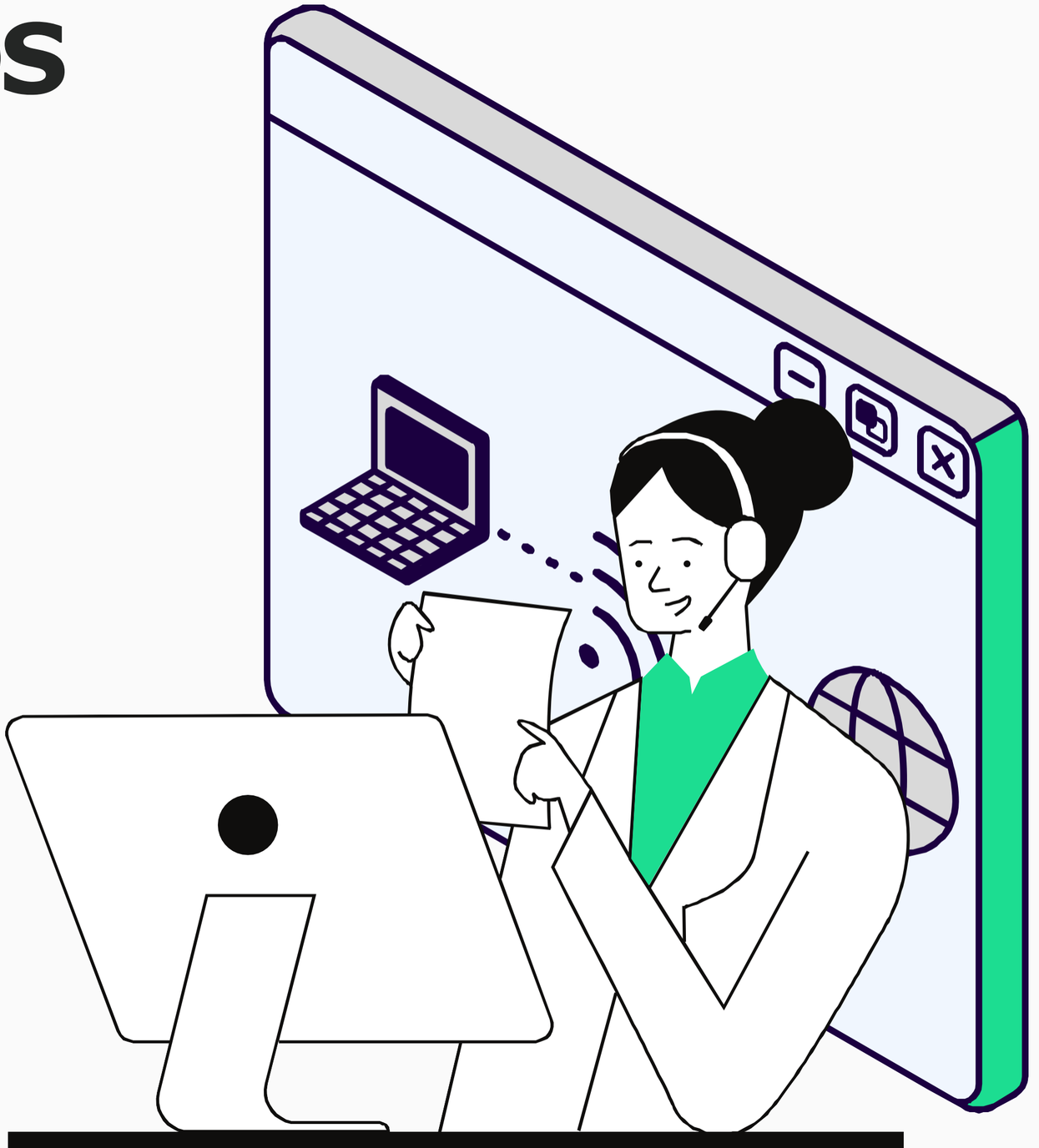
- **Qualitative research** involves the collecting of data in the form of words and images. It is usually comprises methodologies more often preferred by interpretive and critical school of social science.

The Timing of Research

1) Cross-sectional Research
   - It is a ‘snap-short’ research which collects data at one point in time.

2) Longitudinal Research
   - It is a research which collects data at more than one point in time.

SURVEY METHODS



SURVEY METHODS

The Nature of Survey

- Surveys require asking people (known as respondents) for information, using either verbal or written questioning.

- Survey can also be defined as a method of primary data collection based on communication with a representative sample of individuals.

Survey Objectives

- **Advantages of surveys:**

1) Surveys provide quick, inexpensive, efficient, and accurate means of assessing information about the population.
2) It is quite flexible if conducted properly.
3) It is quite scientific and accurate.

Survey Research Methods

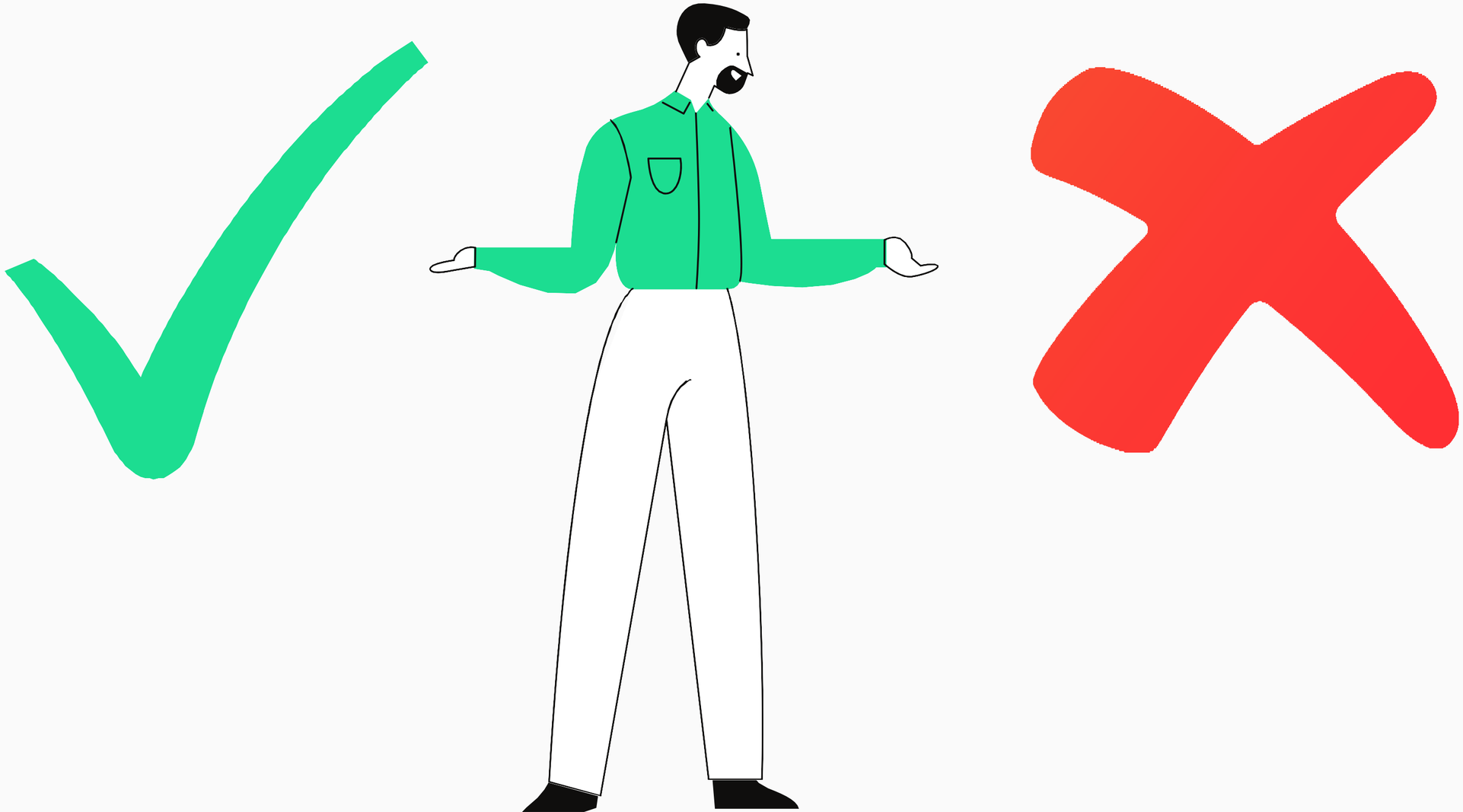
- **Three methods of data collection modes:**

1) Personal interviews
2) Telephone interviews
3) Mail or internet surveys

Factors Determining the Choice of a Particular Survey Method

1) Flexibility of data collection
2) Diversity of questions
3) Use of physical stimuli
4) Sample control
5) Control of the data collection environment
6) Quantity of data
7) Response rate
8) Perceived anonymity
9) Sensitive information
10) Potential interviewer bias
11) Speed
12) Cost

ERRORS IN SURVEY RESEARCH



ERRORS IN SURVEY RESEARCH

Total Survey Error

- Errors can occur during the implementation of a survey research. Thus, researchers must estimate the accuracy of the survey by identifying 2 major sources of errors:

1) Random sampling error.
2) Non-sampling error/Systematic error

Random Sampling Error

- It is a difference between the result of a sample and the result of a census conducted using identical procedures due to chance variation in the scientific selection of sampling

Non-sampling Error or Systematic Error

- It is a systematic error resulting from some imperfect aspect of the research design or from a mistake in the execution of the research.

- **Systematic error can be divided into two errors namely:**

1) Respondent Error

- It is a statistical difference between a survey that includes only those who responded and a survey that also includes those who failed to respond.

Response bias:

1) Acquiescence bias – respondents that have tendency to agree with all questions asked
2) Extremity bias – respondents use extremes when responding to questions
3) Interviewer bias – influence of the interview result in bias in the responses
4) Auspices bias – bias influenced by the organization conducting the study
5) Social desirability bias – to gain prestige or to appear in different social role

2) Administrative Error

- It is an error caused by improper administration or execution of a research task such as:

1) Data processing error
2) Sample selection error
3) Interviewer error
4) Interviewer cheating

MEASUREMENT IN RESEARCH

MEASUREMENT IN RESEARCH

Introduction

- Measurement in research consists of assigning numbers to empirical events in compliance with a set of rules. Thus, it can be said that measurement is a three-part process:

1) Selecting observable empirical events
2) Using numbers or symbols to represent aspects of the events
3) Applying a mapping rule to connect the observation to the symbol

What is Measured?

Concepts used in research can be classified as:

1) *Objects*. Things of ordinary experience. E.g. people, automobiles
2) *Phenomena*. Things that are not concrete E.g. attitudes, perception, opinion, satisfaction
3) *Properties*. Characteristics of the objects that rare concrete, e.g. age, gender, job status, weight, height.

Rules of Measurement

A rule is a guide that tells us on what to do in the research.
Eg: Assign the numerals from 1 to 5 to measure the level of satisfaction of workers in an organization

Measurement levels:

1) Nominal – numbers assigned to objects, such as Gender: Male 1, Female 2
2) Ordinal – e.g. rate services such as ‘excellent’, ‘good’, ‘fair’, or ‘poor’
3) Interval – using 5 point scale or 7 point scale
4) Ratio – equal intervals between the separate point of scale. E.g. RM20 is exactly twice the value of RM10

Criteria for Good Measurement

There are two criteria:

1) Reliability

(Types: Test-retest reliability, Split-half reliability, Inter-item consistency reliability) e.g. using Cronbach alpha for multipoint scaled items

2) Validity

(Types: Content validity, Face validity, Criterion validity, Construct validity)

Attitude Measurement

Techniques for measuring attitudes:

1) Ranking – e.g. rank order our preference for shampoo 1 for rejoice as most preferred, and 5 for least preferred
2) Rating – e.g. service quality of a car service center rating 1 as poor, 2as fair, 3 as good, 4 as excellent
3) Sorting technique – asking respondents to arrange to classify the concept
4) Choice technique – requiring respondents to choose between tow or more alternatives

- Attitude rating scales:

1) **Simple attitude scaling** – Yes No
2) **Category scale** – Never, Rarely, Sometimes, Often, Very Often
3) **The Likert scale** – 1–strongly disagree, 2–disagree, 3-neutral, 4-agree, 5-strongly agree
4) **Numerical scales** – uses numbers as response options to identify response positions
5) **Semantic differential** - *attitude* measure consisting 7 point bipolar rating scales. E.g. How do you describe personality of a lecturer

Pleasant_ _ _ _ _ _ _ Unpleasant
7 6 5 4 3 2 1

QUESTIONNAIRE DESIGN

QUESTIONNAIRE DESIGN

Objectives of Questionnaire

- **Questionnaire** is a survey instrument used to elicit information from the respondents. It also translates the information needed into a set of specific questions that the respondents can and will answer. It should be designed to minimize response error.

Overview of the Major Decisions

- Major decisions:

1) What should be asked
2) How should each question be phrased
3) In what sequence should the questions be arranged
4) What questionnaire layout will best serve the research objectives
5) How should the questionnaire be pretested

Steps Involved in Questionnaire Design Process

- The steps involved are:

1) Specify the information needed
2) Type of interviewing method
3) Individual question content
4) Overcoming inability to answer
5) Overcoming unwillingness to answer
6) Choosing questions structure
7) Choosing question wording
8) Order of the questions
9) Form and layout
10) Reproduction of the questionnaire

Phrasing Questions

- Types of ideal questions in a questionnaire:

1) **Open-ended response question** – asking respondents answering in his/her own word
2) **Fixed-alternative question** – respondent given specific limited alternative responses and asked to choose one
3) **Simple-dichotomy question -** Yes and No question
4) **Determinant-choice question** – fixed alternative question(chose ONE only)
5) **Frequency-determination question** – fixed alternative question asking about general frequency occurrence. e.g. How you frequently watch Astro discovery channel? once a week, everyday, never

The Art of Asking Questions

- The guidelines of asking questions:

1) Avoid complexity
2) Avoid leading questions
3) Avoid ambiguity
4) Avoid double-barreled items
5) Avoid burdensome questions that can tax the respondent’s memory

Attitude Rating Scales

Types of rating scales used in measuring the phenomena:

1) Simple attitude scaling – requires respondent agree or disagree with a statement to a single question. E.g. – Think of your present work. What is it lie most of the time, Circle YES if it describe your work, Circle NO if it does not describe
2) Category scales – 1–never, 2–rarely, 3-sometimes, 4-often, 5-very often
3) The Likert scale
4) Numerical scales

Other Category Scales

Used in a questionnaire design to measure:

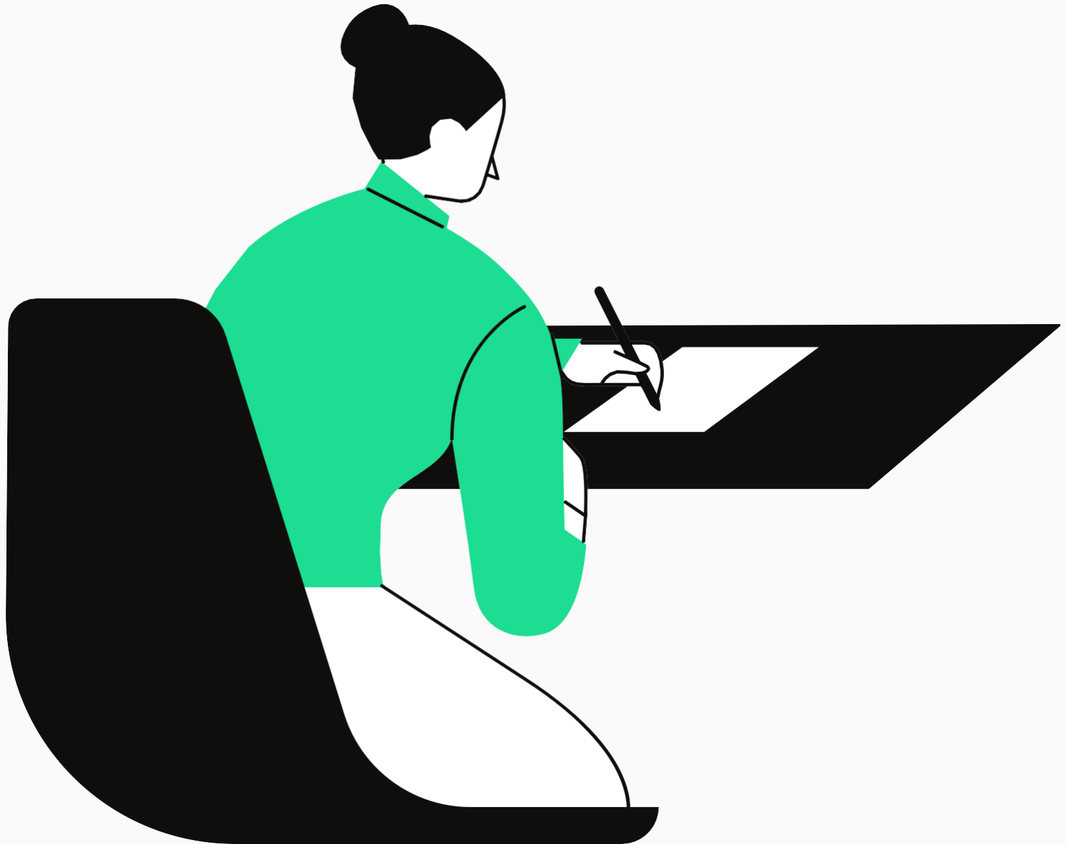
(1)Quality (2)Importance (3)Satisfaction (4)Frequency

Important Aspects of Questionnaire

- The important aspects are:

1) Good introduction
2) Organizing questions, giving instructions, and guidance
3) Personal data – demographic data could be placed at the beginning of questionnaire
4) Open-ended question at the end – allowing respondents to comment
5) Concluding the questionnaire – courteous note ‘thank you’

SECONDARY DATA AND INFORMATION



SECONDARY DATA AND INFORMATION

Introduction

- **Secondary data** refers to historical data structures of variables which had been previously collected and assembled for some research problem or situation other than the current situation.

- **Secondary information** refers to information which has already been collected, assembled, and interpreted at least once for some other specific situation. Eg: Company’s financial reports and research reports.

- **Advantages** of Secondary Data:

1) Easily available
2) Less expensive than primary data
3) Do not require fieldwork to obtain data

- **Disadvantages** of Secondary Data:

1) Not designed specifically to meet the researchers' needs
2) Data may not be up to date

Why Use Secondary Data?

1) To define the problem of study using various secondary data sources.
2) For the purpose of decision making through the collection of descriptive information.
3) For the purpose of model building.

Data Mining

- **Data mining** is a method used to dig through and analyze volumes of data to discover patterns about organizations, customers, products, and activities of interest. E.g. of analysis comparative analysis

Classification of Secondary Data

- Two sources of secondary data:

1) Internal sources – organization reports
2) External sources – created outside the organizations

Evaluating Secondary Data

Five fundamental principles in evaluating secondary data:

(1)Purpose (2)Accuracy (3)Consistency
(4)Credibility (5)Methodology

SAMPLE DESIGNS AND SAMPLING PROCEDURES

SAMPLE DESIGNS AND SAMPLING PROCEDURES

Terms

1) **Sampling** – process of using a small number of items of a larger population to make conclusion about the whole population
2) **Population** – a subset of part of the larger population
3) **Sample** – a complete group of entities sharing some common set of characteristics
4) **Population element** – an individual member of a specific population
5) **Census** – an investigation of all the individual elements making up a population

Why the Need for Sampling?

- Sampling involves two basic issues:

1)Making the right decisions in the selection of items (people, products, or services)

2) Feeling confident that the data collected by the sample can be transformed into accurate information about the overall population

- **Advantages** of sampling:

1) Cuts costs
2) Reduces labor requirements
3) Gathers vital information quickly
4) Produces accurate and reliable results
5) Avoid destruction of test results

Stages in Selection of a Sample

- The stages are:

1) Define target population
2) Determine sampling frame
3) Select sampling technique
4) Select sampling units
5) Determine sample size
6) Conduct fieldwork (Begin data collection)

Classification of Sampling Techniques

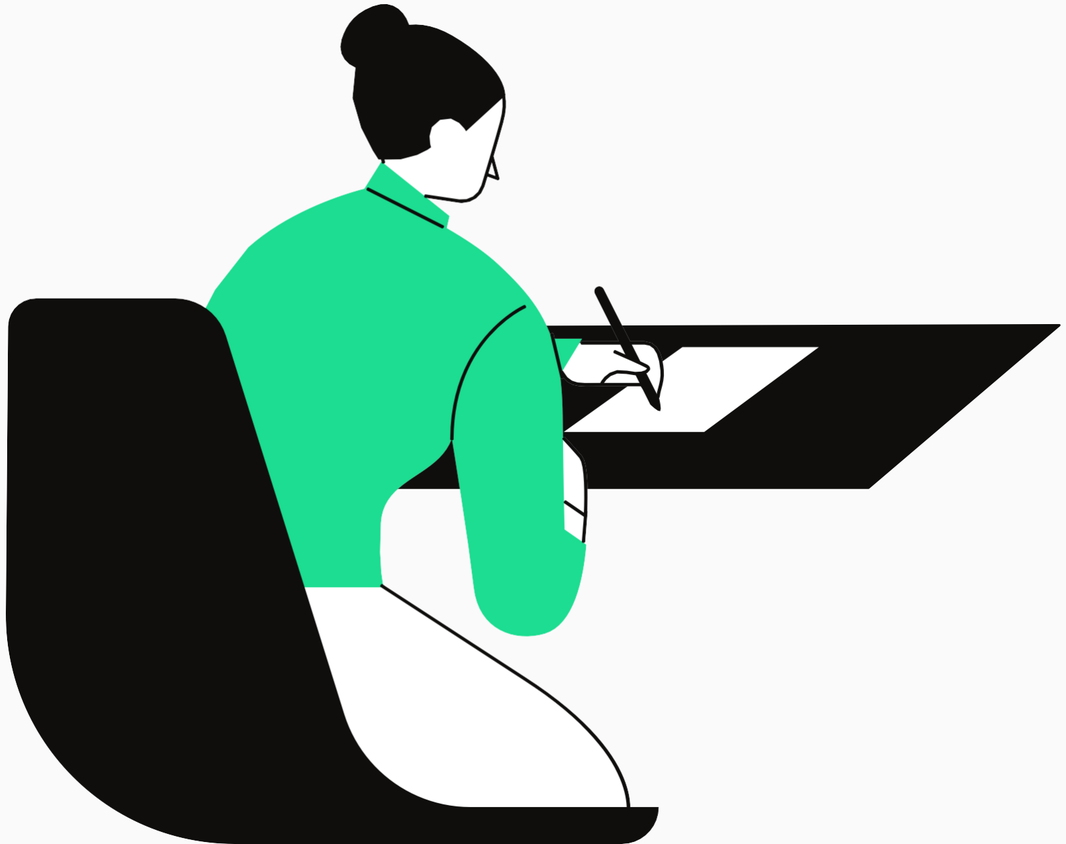
- Types of **probability sampling**:

1) Simple random **sampling** – procedure assures each element in the population has a equal chance of being included in the sample
2) **Systematic sampling** – initial starting point is selected by random process
3) **Stratified random sampling** – a probability sampling where variations include proportional, disproportional, and optimal allocation of sub sample size
4) **Cluster sampling** – primary sampling unit is not individual element in the population but a large cluster of elements
5) **Multistage area sampling** – involves 2 or more steps that combine some of the probability techniques

- Types of **non-probability sampling**:

1) **Convenience sampling** – those units or people most conveniently available
2) **Judgement sampling/Purposive sampling** – technique which an expert researcher choose the sample based on some appropriate characteristics of the sample members
3) **Quota sampling** – ensuring various subgroups in population is represented (there is a quota to achieve)
4) **Snowball sampling** – initial respondents are selected by probability methods, then additional respondents obtained from info provided by initial respondents

REPORT AND PRESENTATION



THE MAKE UP OF THE REPORT

- **A research report is an oral presentation /and written statement that has the purpose of communicating research findings, recommendations for course of action and/or other findings to management or specific audiences**

- **Report format:**

1. **Title page**
2. **Acknowledgement**
3. **Table of Contents**
4. **List of tables and figures**
5. **Abstract (a summary of research includes objectives, results, conclusions and recommendations)**
6. **Body (Introduction, Methodology, Results, Limitations, Significance of Study, Conclusions and Recommendations)**
7. **References**
8. **Appendix**

Contents of Research Proposal

That's all
Thank you!