PRACTICAL RESEARCH 2

COVERAGE:

1. Nature of Inquiry and Research
2. Identifying the Inquiry of Research
3. Writing Chapter 1 of the Research Paper
4. Writing Chapter 2 of the Research Paper

NATURE OF INQUIRY AND RESEARCH

- **Research**
  - "Research is a systematic inquiry to describe, explain, predict, and control the observed phenomenon. It involves ***inductive*** and ***deductive*** methods." – *Earl Robert Babbie*
- **Inductive Reasoning vs Deductive Reasoning**
  - **Inductive Reasoning** – is the act of making generalized conclusions based of specific scenarios. *Examples:*
    a. *Determining when you should leave for work based on traffic patterns,*
    b. *Rolling out a new accounting process based on the way users interact with the software.*
    c. *Deciding on incentive plans based on an employee survey.*
    d. *Changing a meeting time or format based on participant energy levels.*

Specific Observation
Pattern Recognition
General Conclusion

  - **Deductive Reasoning** – is the act of backing up a generalized statement with specific scenarios. *Examples:*
    a. *Developing a marketing plan that will be effective for a specific audience.*
    b. *Designing the floor plan and layout of a shop to maximize sales.*
    c. *Determining the most efficient ways to communicate with clients.*
    d. *Planning out a budget to get the highest output from your investments.*

Existing Theory
Formulate Hypothesis
Collect Data
Analyze Data
Do/Don't Reject Hypothesis

- **Purpose of Research**
  1. **Exploratory** – exploratory research is defined as research used to investigate a problem which is not clearly defined.
     - ❖ It is conducted to have a better understanding of the existing research problem, but will not provide conclusive results.
     - ❖ Used to answer questions like *"what", "why",* and *"how"*.
  2. **Descriptive** - Descriptive research is a research method describing the characteristics of the population or phenomenon studied.
     - ❖ Focuses more on the *"what"* of the research subject than the "why" of the research subject.
  3. **Explanatory** - Explanatory research is a method developed to investigate a phenomenon that has not been studied or explained properly.
     - ❖ Explanatory research is responsible for finding the *"why"* of the events by used to answer questions like "what", establishing cause-effect relationships.
- **Research Methods**
  1. **Qualitative Method** - Qualitative research is a method that collects data using conversational methods, usually *open-ended questions*. The responses collected are essentially *non-numerical*. This method helps a researcher understand what participants think and why they think in a particular way.
  2. **Quantitative Method** - Quantitative methods deal with *numbers* and *measurable forms*. It uses a systematic way of investigating events or data. It answers questions to justify relationships with measurable variables to either *explain, predict, or control a phenomenon.*

	Qualitative	Quantitative
Focus	Exploring ideas or formulating hypotheses/theories	Testing hypotheses or theories
Analysis	Summarizing, categorizing, interpreting	Math and statistical analysis
Expressed in	Words	Numbers, graphs, tables, fewer words
Sample	Few respondents	Many respondents
Questions	Open-ended	Close-ended or multiple choice
Characterized by	Understanding, context, complexity, subjectivity	Testing, measurement, objectivity, replicability

- **Variables in Quantitative Research**
  a. **Variable** - *Are anything that varies*. They are anything that takes on different values, typically numerical values. Everything around you can be a variable in research.
     - Types of Variables:
       1. *Independent Variable* – commonly known as the *X variable.*
          - Presume cause.
          - Can be manipulated by the researcher.
          - Stable and unaffected by the other variable.
       2. *Dependent Variable* – commonly known as the *Y variable.*
          - Presume effect.
          - This variable assumes the change brought about by the other variable (IV).
          - Variable that is being measured by the researcher.
- **Level of Measurements** – also called as *scales of measurement*, tell you how precisely variables are recorded. In scientific research, a variable is anything that can take on different values across your data set (e.g., height or test scores).
  1. **Nominal Level** – you can categorize your data by labelling them in mutually exclusive groups, but there is no order between the categories.
     - *Examples: City of Birth, Gender, Ethnicity, Car Brands, Marital Status.*
  2. **Ordinal Level** – you can categorize and rank your data in order, but you cannot say anything about the intervals between the rankings.
     - *Examples: Top 5 Olympic medalists, Language ability (e.g., beginner, intermediate, fluent), Likert-type questions (e.g., very dissatisfied to very satisfied).*
  3. **Interval Level** - you can categorize, rank, and infer equal intervals between neighboring data points but there is no true zero point.
     - *Examples: Test scores (e.g., IQ or exams), personality inventories, temperature in Fahrenheit or Celsius.*
  4. **Ratio Level** – you can categorize, rank, and infer equal intervals between neighboring data points, and there is a true zero point.
     - *Examples: Height, Age, Weight, Temperature in Kelvin.*

IDENTIFYING THE INQUIRY AND STATING THE PROBLEM

- **Types of Quantitative Research**
  There are two broad classifications in quantitative research:
  a. **Experimental** – adheres to the procedures of scientific method. It involves manipulation of variables and employment of a treatment or intervention.
     - *Example: The Effects of Herbal Treatment in Reducing Blood Sugar among those diagnosed with Diabetes in investigated.*
     - *True Experimental* – to test the effectiveness of a mobile health app designed to increase physical activity among adults.
     - *Example: Impact of Mobile Health Apps on Physical Activity Levels.*
     - *Quasi-experimental* – to determine if using a gamified learning increases student engagement compared to traditional learning management system (LMS).
     - *Example: Effect of Gamified Learning Platforms on Student Engagement.*
  b. **Non-Experimental** – does not use treatment or intervention. It may be classified according to **the research purpose**: *Descriptive, predictive, or explanatory.*

     - **Descriptive** – non-experimental quantitative research is considered *descriptive* if the

researchers answer "yes" to the following questions:

1. *Is the researcher primarily describing the phenomenon?*
2. *Were the researchers documenting the characteristics of the phenomenon?*

- **Predictive** – If the researchers aim is to *predict or forecast some event or phenomenon in the future*, then the research is considered predictive. Research is predictive if researchers answer "yes" to the following questions:
  1. *Were the researchers trying to establish the causal relationship between the IV and DV?*
  2. *Were the researchers trying to predict or forecast the effect of an IV and DV?*
- **Explanatory** – research is explanatory if the researchers answer "yes" to the following questions:
  1. *Were the researchers trying to develop or test a theory about a phenomenon to explain how and why it operates?*
  2. *Were the researchers trying to explain how the phenomenon operates in identifying the causal factors that produce the change in it?*

Non-experimental according to time dimension:

1. **Cross-sectional Research** – the data are collected from research participants at a single point in time or during a single, relatively brief period of time.
2. **Retrospective Research** – the researcher looks backward in time. This is typically done by starting with independent variable and moving backward in time to locate information on independent variables that explain current differences on the dependent variable.
3. **Longitudinal Research** – the data are collected at more than one data collection period so that the researcher can make comparisons across time. This means collecting data starting with the present and then collecting more data at a later time for comparison.

Steps in the Quantitative Research Process:

Step 1: Define the research problem.

Step 2: Do the review of related literature.

Step 3: Formulate hypothesis.

Step 4: Prepare the research design.

Step 5: Collect data.

Step 6: Analyze and interpret data.

Step 7: Write the research report.

Step 8: Report findings of the research.

WRITING CHAPTER 1 OF THE RESEARCH PAPER

- In writing the first chapter of the research paper, the researcher must bear in mind the following concerns:

1.0 Introduction
1.1 Statement of the Problem
1.2 Scope and Limitation
1.3 Significant of the Study
1.4 Research Objectives

- **Introduction** - Constructing a strong introduction in a quantitative research paper is crucial as it sets the stage for the entire study. The introduction should clearly present the research problem, provide context, and lead into the research questions or hypotheses.
  1. ***Start with a Broad Context***
     - **Purpose:** Begin by introducing the broad area of research to provide a general background.
     - **Content**: Present the topic and its significance. Discuss current trends, issues, or debates within the field. Highlight the relevance of the study to the broader discipline.
  2. ***Narrow Down to the Specific Problem***
     - **Purpose**: Focus on the specific problem or gap in the existing literature that your research aims to address.
     - **Content**: Identify a specific issue, gap, or challenge within the broader topic. Highlight the importance of addressing this gap. Use the literature to support the existence of this gap or problem.
  3. ***State the Research Problem***
     - **Purpose**: Clearly articulate the research problem that your study addresses.
     - **Content**: Present the central problem or question your study will investigate. Explain

why this problem is significant and worth investigating.

4. ***Review Relevant Literature (Briefly)***
   - **Purpose**: Provide a brief overview of key studies that have addressed the research problem.
   - **Content**: Summarize the main findings of relevant studies. Point out inconsistencies, gaps, or areas where further research is needed. Position your study within the context of the existing literature.
5. ***State the Purpose of Your Study***
   - **Purpose**: Clearly state the main aim or purpose of your research.
   - **Content**: Articulate the objectives of your study. Explain how your research will address the identified problem or gap.

➢ **1.1 Statement of the Problem**

- In quantitative research, research questions inquire about the relationships among variables being investigated and are usually framed at the start of the study. These are precise and typically linked to the subject population, dependent and independent variables, and research design.
- **Types of Research Questions:**

1. **Descriptive Research Questions**
   - *Purpose*: To describe characteristics or functions of a specific population or phenomenon.
   - *Key Feature*: These questions seek to quantify and describe variables without making inferences or Comparisons.
2. **Comparative Research Questions**
   - *Purpose*: To compare differences between two or more groups or conditions.
   - *Key Feature*: These questions involve comparing groups based on one or more variables to identify any significant differences.
3. **Relational Research Questions**
   - *Purpose*: To examine the relationship or association between two or more variables.
   - *Key Feature*: These questions investigate correlations or associations, often without implying Causation.
4. **Causal Research Questions**
   - *Purpose*: To determine cause-and-effect relationships between variables.
   - *Key Feature*: These questions are designed to test hypotheses about causal links, usually through experiments or longitudinal studies.

➢ **1.2 Scope and Delimitation**

- Constructing the scope and delimitation of a study is an essential part of any research project, as it defines the boundaries of your research and clarifies what your study will and will not cover.

1. **Define the Scope of the Study**

- The **scope** refers to the extent of the study—what it will cover. This includes the main focus, the population or sample, the time frame, and the variables of interest.
- *Identify the Focus*: Clearly state the main focus of your study.
- *Determine the Population or Sample*: Specify the group or population that your study will investigate.
- *Establish the Time Frame*: Define the time period that your study will cover.
- *Specify the Variables*: Outline the key variables that will be measured or examined.
- *Outline the Methodology*: Briefly mention the methods or tools that will be used to conduct the study.

2. **Define the Delimitations of the Study.**

- **Delimitations** are the boundaries you set for your study, which include aspects that you are not covering and the reasons for those decisions. This section clarifies what the study will not address and helps prevent the research from being too broad or unfocused.
- ***Steps to define the delimitations:***

a. Explain what is excluded: Clearly state what aspects are not included in your study and why.
b. Justify the Choices: Provide reasons for the delimitations, linking them to the objectives and scope of the study.
c. Mention the Geographic Boundaries: If applicable, specify the geographical limitations of your study.

3. **Review and Refine**

- *Ensure Clarity*: Make sure your scope and delimitations are clearly articulated and easy to understand.
- *Align with Objectives*: Confirm that the scope and delimitations are consistent with your research objectives and questions.
- *Be Concise*: Avoid unnecessary detail; be clear and to the point.

➢ **1.3 Significance of the Study**

- The "**Significance of the Study** " section explains why your research is important and how it will contribute to the existing body of knowledge. It should clearly communicate the value of your research to various stakeholders, including the academic community, practitioners, policymakers, and society at large.

➢ **1.4 Research Objective**

- Constructing research objectives in a quantitative approach involves clearly defining what you aim to achieve with your study. Research objectives should be **specific, measurable, achievable, relevant, and time-bound (SMART).**

1. ***Start with the Research Problem***
   - Purpose: Your research objectives should directly address the research problem or questions identified in your study.
   - Content: Ensure that the objectives align with the overall goal of the research.
2. ***Define Specific Objectives***
   - Purpose: Clearly outline what you intend to accomplish with your study.
   - Content: Use precise language to state what you want to measure or analyze. Avoid vague or broad statements.
3. ***Ensure Measurability***
   - Purpose: Objectives should be quantifiable so that you can assess whether they have been achieved.
   - Content: Define the metrics or indicators you will use to measure success. Include specific numerical targets or benchmarks where possible.
4. ***Ensure Relevance***
   - Purpose: Objectives should be directly related to the research problem and contribute to the study's overall aim.
   - Content: Ensure that achieving the objectives will help address the research questions or hypotheses. Align with the study's scope and significance.
5. ***Write the Research Objectives***
   - Purpose: Clearly articulate the objectives in a structured format.
   - Content: Use bullet points or numbered lists for clarity. Begin each objective with an action verb (e.g., *"Measure, " "Assess, " "Evaluate ")*.
6. ***Review and Refine***
   - Clarity: Ensure the objectives are clear, specific, and easy to understand.
   - Alignment: Confirm that the objectives align with the research problem, questions, and hypotheses.
   - Feasibility: Double-check that the objectives are achievable given your resources and constraints.

WRITING CHAPTER 2 OF THE RESEARCH PAPER

- **What is Literature Review?**
  - ❖ The process of obtaining relevant and important information or material related to the research topic is called **"review of related literature"**.
  - ❖ A literature review helps you explain how the research problem to be investigated fits to the larger picture. A literature review lets you identify ***what has already been done so as not to replicate other researchers work.***

STEPS IN DOING A LITERATURE REVIEW
1. Identify key terms to use in your research for literature.
2. Locate literature about a topic by consulting several types of materials and databases.
3. Evaluate and select the literature critically for your review.
4. Organize the literature you have selected.
5. Write the literature review.

- **Literature Review** usually has **3 main parts:**
  a. ***Introduction*** – sets the stage for the review. This is where you give an overview, define important key words, and inform readers of the limitations of the review.
  b. ***Body*** – it contains the discussions on the similarities and differences of findings from several articles and how they are related to the present study.

c. ***Conclusion*** – summarizes the trends and themes that you have observed as you describe the findings from the different articles. It is in the conclusion that you identify the gaps in the literature.

- **Citing References**
  - ***Reference citation*** is the process of documenting the various sources of materials and information relevant to your study.
- The three most common citation styles in writing a literature are:
  1. **American Psychological Association (APA) style (7th Edition) –** citations are used in two main forms: **in-text** citations and the **references list**.
     - **A. In-text Citation *(within the body of your paper)*** – APA uses the *author-date* method for in-text citations.
       - **Basic Format:** (Author's Last Name, Year) – Ex. (Smith, 2020)
       - **For Direct Quotes:** Include the page number – Ex. (Smith, 2020, p.15)
       - **Multiple Authors:**
         - **Two Authors:** (Author1 & Author2, Year) – Ex. (Smith & Johnson, 2020).
         - **Three or More Authors:** (Author1 et al., Year) – Ex. (Smith et al., 2020)
         - **No Author:** User the title in Italics for books or reports – Ex. (*A Guide to Research*, 2020) or ("Global Warming", 2020).
     - **B. Reference List *(at the end of your research paper)***

       a. Books

       Format**:** *Author, A. A. (Year). Title of the book (Edition if applicable). Publisher*

       b. Journal Article

       Format**:** *Author, A. A., & Author, B. B. (Year). Title of the article. Title of the journal, Volume (Issue), page range.*

       c. Websites

       Format**:** *Author, A. A. (Year, Month Day). Title of the webpage. Website Name. URL*
     - **C. General APA Formatting Guidelines**
       - Double-spacing throughout.
       - Hanging indent for all references.
       - Alphabetical order by the first author's last name.
  2. **Modern Language Association (MLA) style**
  3. **Chicago Manual of Style**

- **What is Framework?**
  - It is defined as a "**set of ideas that provide support to something**".
  - **2 Types of Research Framework:**
    - a. ***Theoretical Framework***
    - b. ***Conceptual Framework*** - a visual or written representation of the relationships between key variables or concepts within your study. It serves as the foundation that connects your research objectives, hypotheses, and methodology, helping to clarify how the different components of your research are interrelated.
      - *It is used to:*
        1. Define the concepts being studied.
        2. Provide a clear structure for the research process.
        3. Show how the variables or ideas relate to one another.
        4. Guide the collection and analysis of data.

CONCEPTUAL FRAMEWORK		
INPUT	**PROCESS**	**OUTPUT**
The variables that cause the problem, phenomenon, or transformation.	The method by which the variables are collected and synthesized.	The problem, phenomenon, or transformation; the outcome of the variables.

- **Definition of Terms** – this refers to the section where key terms and concepts used in the study are clearly defined to ensure consistency and clarity throughout the research.
  - **a. *Conceptual Definition*** – explains the meaning of a term or concept based on how it is understood in theory or the broader literature.
    - Purpose – to provide a common understanding of the term as it is used in a specific discipline or context.
    - Example – *In a study on motivation, the conceptual definition of motivation might be: "Motivation refers to the internal*

processes that initiate, guide, and sustain goal-oriented behavior".

b. ***Operational Definition*** – it explains how a concept or variable will be measured or manipulated in a specific study.
- Purpose – To specify how the researcher will measure or observe the concept in the context of the study.
- Example – *In the same study on motivation, the operational definition might be: "Motivation will be measured using a 10-item questionnaire, where respondents rate their level of motivation on a scale of 1 to 5".*

- **Research Hypothesis** – a ***hypothesis*** in quantitative research is a specific, testable prediction about the relationship between two or more variables.
  - ***Types of Hypotheses:***
    1. **Null Hypothesis (H_0)** – states that there is no relationship between the variables being studied. It assumes that any observed difference is due to chance or random variation.
       - Purpose: To be tested and either rejected or accepted in the analysis. The goal is often to reject the null hypothesis, which would suggest a significant relationship exists between variables.
       - Example: *"There is no significant relationship between social media usage and academic performance among high school students."*
    2. **Alternative Hypothesis (H_1)** – The alternative hypothesis states that there is a relationship between the variables. It is the hypothesis that the researcher aims to support through evidence.
       - Purpose: It proposes the expected relationship or difference between variables and is tested against the null hypothesis.
       - Example: *"Increased social media usage is associated with lower academic performance among high school students."*
  - ***Formulating Hypotheses***
    1. *Identify the Variables*: Determine the independent and dependent variables.
    2. *Review Existing Literature*: Use previous research to inform your hypothesis.
    3. *State the Relationship*: Clearly express the expected relationship between the variables.
    4. *Make it Testable*: Ensure your hypothesis can be tested with quantitative methods such as surveys, experiments, or statistical analysis.