RESEARCH OBJECTIVES

DEFINITION

1. The OBJECTIVES of a research project summarize what is to be achieved by the study.
2. Research objectives are the results sought by the researcher at the end of researcher process, i.e., what the researcher will be able to achieve at the end of the research study.

- ❖ We need operational definitions in research so that we know exactly what researchers are talking about when they refer to something.
- ❖ There might be different definitions of words **depending on the context** in which the word is used. Think about how words mean something different to people from different cultures. To avoid any confusion about definitions, in research we explain clearly what we mean when we use a certain term.

CHARACTERISTICS OF RESEARCH OBJECTIVES

- Research Objective is a concrete statement describing what the research is trying to achieve
- The objective should be **SMART**

SPECIFIC = What precisely do you hope to achieve from undertaking the research
MEASURABLE = What measures will you use to determine whether you have achieved your objectives?
ACHIEVABLE = Are the targets you have set for yourself achievable given all the possible constraints
REALISTIC = Given all other demands upon your time, will you have the resources and energy to complete the research on time
TIMELY / TIME BOUND = Will you have time to accomplish all your objectives?

- ❖ Research objective should be **Relevant, Feasible, Logical, Observable, Unequivocal, and Measurable**
- ❖ Objective is a purpose that can be reasonably achieved within the expected time-frame and with the available resources
- ❖ The objective of research project summarizes what is to be achieved by the study
- ❖ The research objectives are the specific accomplishments the researcher hopes to achieve by the study
- ❖ The objectives include obtaining answers to research questions or testing the research hypotheses

Why should Research Objectives be developed?

- The formulation of objectives will help you to:

1. **Focus** the study (narrowing it down to essentials);
2. **Avoid** the collection of data which are not strictly necessary for understanding and solving the problem you have identified; and
3. **Organise** the study in clearly defined parts or phases.

4. Provide **directions:** Properly formulated, specific objectives will facilitate the development of your research methodology and will help to orient the collection, analysis, interpretation and utilisation of data.

TYPES OF RESEARCH OBJECTIVES

❖ There are two types of research objectives;

General objectives:

❖ General objectives are broad goals to be achieved. The general objective of the study states what the researcher expects to achieve by the study in general terms.
❖ General objectives are usually less in number.

Specific Objectives:

1. Specific objectives are for short term and narrow in focus.
2. General objectives can be broken into small logically connected parts to form specific objectives.
3. General objective is met through accomplishing all the specific objectives.
4. The specific objectives are more in number and they systematically address various aspects of problem as defined under the statement of problem and the key factor to influence or cause the problem
5. They should specify *what* the researcher will do in the study, *where*, and for *what purpose*
6. Objectives should be closely related to the statement of the problem. For example, if the problem identified is low utilization of child welfare clinics, the general objective of the study could be to identify the reasons for this low utilization, in order to find solutions.

METHOD OF STATING OBJECTIVES

❖ When stating the objectives of the study, the following guidelines must be adhered to:

1. The objectives should be stated briefly and concisely
2. They should cover the different aspects of the problem and their contributing factors in a coherent way and in a logical sequence
3. Ensure that they are clearly phrased in operational terms, specifying exactly what the researcher is going to do, where, and for what purpose
4. They should be realistic considering local conditions
5. Use ACTION VERBS that are specific enough to be evaluated.

❖ **Examples of action verbs** are: to assess, to identify, to determine, to compare, to verify, to calculate, to describe, to analyse, and to establish
❖ Avoid the use of ***vague non-action verbs*** such as: *to appreciate, to understand, or to study*.
❖ A researcher should always keep in mind that when the project is evaluated, the result will be compared to the objectives. If the objectives have not been spelled out clearly, the project cannot be considered complete.

SOME EXAMPLES

- **Research Title**: A study into the cost and quality of home-based care for HIV/AIDS patients and their communities in Zimbabwe, developed at an HSR workshop, for example, had as its general objective:

General Objective: To explore to what extent community home-based care (CHBC) projects in Zimbabwe provide adequate, affordable and sustainable care of good quality to people with HIV/AIDS, and to identify ways in which these services can be improved.

It was split up into the following specific objectives:

Specific Objectives

1. To identify the full range of economic, psychosocial, health/nursing care and other needs of patients and their families affected by AIDS.

2. To determine the extent to which formal and informal support systems address these needs from the viewpoint of service providers as well as patients.

3. To determine the economic costs of CHBC to the patient and family as well as to the formal CHBC programmes themselves.

4. To relate the calculated costs to the quality of care provided to the patient by the family and to the family/patient by the CHBC programme.

5. To determine how improved CHBC and informal support networks can contribute to the needs of persons with AIDS and other chronically and terminally ill patients.

6. To use the findings to make recommendations on the improvement of CHBC to home care providers, donors and other concerned organisations, including government.

- **The first specific objective usually focuses on quantifying or specifying the problem**

ACTIVITY 2:

- With reference to the Research Title / Topic that you have developed in the first Assignment, Activity 1) develop the following:

a. The general objective
b. Specific objectives (At least FOUR) for your research proposal

NOTE THE FOLLOWING:

- After formulating your objectives ask yourself the following questions:

1. Do the objectives deal with all aspects of the research problem in a logical and coherent way?
2. Are the objectives clearly phrased?
3. Are the objectives defined in operational terms that can be measured? Are they realistic?
4. Do they indicate where the study will be conducted?

5. Do they include the development of recommendations for how the research results will be used to solve the problem?

TITLE OF THE STUDY

- Now you can finalise the title of your study. ***The title should be in line with your general objective.***
- Remember we said earlier (under research topic) that the title should not be the first but the last thing to be formulated. This should be done after you have stated the general and specific objectives, meaning that you now know exactly what you are going to do.
- Make sure that it is specific enough to tell the reader what your study is about and where it will be carried out. So, using the title above, the final title of the study should be stated as…

'*A study on cost and quality of community home-based care for HIV/AIDS patients and their communities in Zimbabwe'. AND NOT:*
'A study on community home-based care' (too short and not complete)

DETERMINE THE GENERAL AND SPECIFIC OBJECTIVES OF THE FOLLOWING RESEARCH TOPICS / TITLES

1. Prevalence and barriers to the use of insecticide treated nets among pregnant women attending ante-natal clinic at Specialist Hospital Tema, Ghana

2. Bed net use and associated factors in a rice farming community in the Central Region of Ghana

3. Factors Associated with Use and Non-Use of Mosquito Nets for Children Less Than 5 Years of Age in The Mfantseman Municipality, Ghana

4. Attitudes, Knowledge, and Practices Regarding Malaria Prevention and Treatment among Pregnant Women in Northern Ghana

5. Use of long-lasting insecticide bed net among Pregnant women in Ga East Municipality of the Greater Accra Region

OPERATIONAL DEFINITONS

1. In every research study, each variable or concept must be operationally defined.
2. An **operational definition** is how we (the. researcher) decide to measure our variables. in our **study**
3. An operational definition allows the researchers to describe in a specific way what they mean when they use a certain term.
4. Definition: An operational definition is the statement of procedures the researcher is going to use in order to measure a specific variable.
5. The **operational definition** of a **variable** is the specific way in which it is measured in that **study**. Another **study** might measure the same conceptual measure differently.

6. The specific way in which a variable is measured in a particular study is called the **operational definition.**
7. A **conceptual definition** tells you what the concept means, while an **operational definition** only tells you **how to measure it.**
8. A **technical definition** is a **definition in the technical** sense, while an **operational definition** includes information from the real world.
9. **Operational definition of terms refers to a detailed explanation of the technical terms and measurements used during data collection.**
10. An essential component of an operational definition is **MEASUREMENT**.
    - A simple and accurate definition of measurement is the assignment of numbers to a variable in which we are interested. These numbers will provide the raw material for our statistical analysis

- What is the advantage of using an operational definition? It guarantees that other researchers will know exactly how you **define** & measured your variable.
- This is done to standardize the data. Whenever data is being collected, it is necessary to clearly define how to collect the data.
- Data that is not defined runs the risk of being inconsistent and might not give the same results when the study is replicated.
- Often we assume that those collecting the data understand what to do and how to complete the task. However, people may have differing views and interpretations of the same thing, and this will affect the data collection.
- The only way to ensure that the data is consistent is by means of a detailed operational definition of term

Importance

- Your operational definitions describe the variables you will use as indicators and the procedures you will use to observe or measure them.
- You need an operational definition because you can't measure anything without one, no matter how good your conceptual definition might be.

Operational definitions serve four purposes

1. It establishes the rules and procedures the researcher uses to measure the variable.
2. It provides unambiguous and consistent meaning to terms/variables that otherwise can be interpreted in different ways.
3. It makes the collection of data as well as the analysis more focused and efficient.
4. It guides what type of data and information we are looking for.
5. An **operational definition** allows the researchers to describe in a specific way what they **mean** when they use a certain term.

- Generally, **operational definitions** are concrete and measurable. Defining variables in this way allows other people to see if the research has validity. Validity here refers to if the researchers are actually measuring what they intended to measure.

Why We Need Operational Definitions

- There are a number of reasons why researchers need to have operational definitions including:
  Validity
  Replicability
  Generalizability
  Dissemination

- The first reason was mentioned earlier in the post when reading research others should be able to assess the **validity of the research**. That is, did the researchers measure what they intended to measure? If we don't know how researchers measured something it is very hard to know if the study had validity.

- The next reason it is important to have an operational definition is for the sake of **replicability**. Research should be designed so that if someone else wanted to replicate it they could. By replicating research and getting the same findings we validate the findings. It is impossible to recreate a study if we are unsure about how they defined or measured the variables.

- Another reason we need operational definitions is so that we can understand how generalizable the findings are. In research, we want to know that the findings are true not just for a small sample of people. We hope to get findings that **generalize** to the whole population. If we do not have operational definitions, it is hard to generalize the findings because we don't know who they generalize to.

- Finally, operational definitions are important for the **dissemination of information**. When a study is done it is generally published in a peer-reviewed journal and might be read by other psychologists, students, or journalists. Researchers want people to read their research and apply their findings. If the person reading the article doesn't know what they are talking about because a variable is not clear it will be hard to them to actually apply this new knowledge.

Operational Definition Examples

EXAMPLE ONE:

A researcher wants to measure if age is related to addiction. Perhaps their hypothesis is: the incidence of addiction will increase with age. Here we have two variables, age and addiction. In order to make the research as clear as possible, the researcher must define how they will measure these variables. Essentially, how do we measure someone's age and how to we measure addiction?

Variable One: ***Age*** might seem straightforward. You might be wondering why we need to define age if we all know what age is. However, one researcher might decide to measure age in months in order to get someone's precise age, while another researcher might just choose to measure age in years. In order to understand the results of the study, we will need to know how this researcher operationalized age. For the sake of this example let's say that age is defined as **how old someone is in years.**

Variable Two: The variable of ***addiction*** is slightly more complicated than age. In order to operationalize it the researcher has to decide exactly how they want to measure addiction. They might narrow down their definition and say that addiction is defined as going through withdrawal when the person stops using a substance. Or the researchers might decide that the definition of addiction is: if someone currently meets the DSM-5 diagnostic criteria for any substance use disorder. For the sake of this example, let's say that the researcher chose the latter.

- **The Diagnostic and Statistical Manual of Mental Disorders (Fifth Edition), shortened to DSM-5, is the guide used by clinicians to diagnose mental health conditions**

Final Operational Definition: In this research study age is defined as participant's age measured in years and the incidence of addiction is defined as whether or not the participant currently meets the DSM-5 diagnostic criteria for any substance use disorder.

EXAMPLE TWO

A researcher wants to measure if there is a correlation between hot weather and violent crime. Perhaps their guiding hypothesis is: as temperature increases so will violent crime. Here we have two variables, weather and violent crime. In order to make this research precise the researcher will have to operationalize the variables.

Variable One: The first variable is ***weather.*** The researcher needs to decide how to define weather. Researchers might chose to define weather as outside temperature in degrees Fahrenheit. But we need to get a little more specific because there is not one stable temperature throughout the day. So the researchers might say that weather is defined as the high recorded temperature for the day measured in degrees Fahrenheit.

Variable Two: The second variable is ***violent crime***. Again, the researcher needs to define how violent crime is measured. Let's say that for this study it they use the FBI's definition of violent crime. This definition describes violent crime as "murder and nonnegligent manslaughter, forcible rape, robbery, and aggravated assault".

However, how do we actually know how many violent crimes were committed on a given day? Researchers might include in the definition something like*: the number of people arrested that day for violent crimes as recorded by the local police.*

Final Operational Definition: For this study temperature was defined as high recorded temperature for the day measured in degrees Fahrenheit. Violent crime was defined as the number of people arrested in a given day for murder, forcible rape, robbery, and aggravated assault as recorded by the local police.

OTHER FEATURES

- It is critical to operationally define a variable in order to lend credibility to the methodology and to ensure the reproducibility of the results of the study. Another study may identify the same variable differently, making it difficult to compare the results of these two studies.

- To begin with, the operational definition is different from the dictionary definition, which is often conceptual, descriptive, and consequently imprecise.

- In contrast, an operational definition gives an obvious, precise, and communicable meaning to a concept that is used to ensure comprehensive knowledge of the idea by specifying how the idea is measured and applied within a particular set of circumstances.

- This definition highlights two important things about an operational definition:

a. It gives a precise meaning to the spoken or written word, forming a 'common language' between two or more people.
b. It defines how a term, word or phrase is used when it is applied in a specific context. This implies that a word may have different meanings when used in different situations.

- ***An operational definition must be valid, which implies that it should measure what it is supposed to measure. It must also be reliable, meaning that the results should be the same even when done by different people or by one person at different times.***

- An operational definition ensures a succinct description of concepts and terms as applied to a specific situation to facilitate the collection of meaningful and standardized data.

- When collecting data, it is important to define every term very clearly in order to assure all those who collect and analyze the data have the same understanding.

- Therefore, operational definitions should be very precise and be framed to avoid variation and confusion in interpretation.

ESSENTIAL CHARACTERISTICS OF OPERATIONAL DEFINITIONS

1. **Stated in measurable and observable terms:** A operational definition must denote the distinctive characteristics of a variable in measurable terms.

2. **Non-ambiguous language:** An operational definition should not be ambiguous (capable of being misunderstood in more than one way)

3. **Stated positively:** An operational definition should be stated positively, expressing the properties possessed by the variable rather than the characteristics lacked by the variable. E.g. we cannot describe a book as an object without specific reference to its colour, weight or title.

4. **Clear and precise:** An operational definition should be stated precisely, clearly with distinct terms to avoid different interpretation

5. **Valid:** the operational definition should be valid as per the facts. So it is clear that the researcher operationalizes the research concepts, but the operational definitions must have validity component to be supported through facts.

6. **Reliability:** The operational definition must also have reliability characteristic so that there will be consistency in interpretation of operational definition (in the same way) by all those who have to use it.

FURTHER EXAMPLES

❖ Conceptual and Operational definitions of CONSTIPATION

CONCEPTUAL DEFINITION Conceptual definition *(Precisely indicates the fundamental characteristics of a concept*)	Constipation is defined as passes of hard stools, infrequent stools, the need for excessive straining, a sense of incomplete bowel evacuation and excessive time spent on toilet or unsuccessful defaecation.
OPERATIONAL DEFINITION (Precisely indicates observable characteristics of a concept)	
Five different operational definitions of constipation are presented as examples	1. Bowel movements less than three (3) times a week 2. Straining during > 25% of bowel movements in last 12 weeks 3. Lumpy or hard stool for > 25% bowel movements in last three (30 months 4. A child who has pebble-like, hard stool for a majority of bowel movements for at least 2 weeks or firm stools ≤ 2 times per week for at least 2 weeks 5. Two or more of these symptoms for at least 12 weeks in the preceding 12 months during > 25% bowel movements a. straining while defaecating b. passing hard stools c. sensation of incomplete evacuation d. sensation of anorectal blockage and e. manual evacuation of rectum /stool

❖ In the above examples, the operational definitions are the VARIABLES that would be measured.

❖ These operational definitions are the items that would be presented on your questionnaire so that if anybody with constipation has any of the operational definitions you can then score and measure it accordingly.

EXAMPLE 2

RESEARCH TITLE
MALARIA AND ANAEMIA IN PREGNANT AND NON-PREGNANT WOMEN OF CHILD-BEARING AGE AT THE UNIVERSITY HOSPITAL - KNUST, KUMASI

OPERATIONAL DEFINITIONS (FOR THE BOVE)

1. **Anaemia**: This is a blood condition in which there are too few red blood cells or the red blood cells are deficient in haemoglobin. Haemoglobin level < 11g/dl = anaemic; haemoglobin level ≥ 11g/dl = non-anaemic.

2. **Antenatal Clinic:** It is a specific clinic that takes care of the health needs of pregnant women.

3. **Insecticide Treated Net (ITN);** Bed net that has been treated with an insecticide in the last 6 months.

4. **Malaria:** It is defined as the presence in the peripheral or venous blood of asexual blood stage of Plasmodium, irrespective of species or symptom
5. **Multigravidae:** A pregnant woman who has had two or more pregnancies.

6. **Parasitaemia**: This is defined as presence of malaria parasites in blood films from peripheral circulation as counted per 100 high power fields.

7. **Pregnancy:** The state of being with a child and it ranges from the time of conception to delivery of the conceptus.

8. **Primigravidae:** One who is pregnant for the first time.

9. **Sulphadoxine pyrimethamine (SP)**: This is the drug given to the pregnant women in an Intermittent Preventive Treatment programme.

10. **Young age**: This age was defined as age < 20 years