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Research Paper Commerce

Identifying Variables in The Research Design

K. SIVA PRAKASA RAO M.Com, M.B.A. Assistant Professor, KBN COLLEGE, VIJAYAWADA

KEYWORDS :

Research is undertaken within most professions. More than a set of skills, it is a way of thinking: examining critically the various aspects of your professional work. It is a habit of questioning what you do, and a systematic examination of the observed information to find answers with a view to instituting appropriate changes for a more effective professional service. When you say that you are undertaking a research study to find answers to a question, you are implying that the process;

1. Is being undertaken within a framework of a set of philosophies approaches;

2. Uses procedures, methods and techniques that have been tested for their validity and reliability;

3. Is designed to be unbiased and objective.

Philosophies mean approaches e.g. qualitative, quantitative and the academic discipline in which you have been trained. Validity means that correct procedures have been applied to find answers to a question. Reliability refers to the quality of a measurement procedure that provides repeatability and accuracy. Unbiased and objective means that you have taken each step in an unbiased manner and drawn each conclusion to the best of your ability and without introducing your own vested interest.

In a research study it is important that the concepts used should be operationalised in measurable terms so that the extent of variations in respondents' understanding is reduced if not eliminated. Techniques about how to operationalise concepts, and knowledge about variables, play an important role in reducing this variability. Their knowledge, therefore is important in 'fine tuning' your research problem. For example:

-'Jet Airways' is a perfect example of quality cabin service.

- Food in this restaurant is excellent.

- The middle class in India is getting more prosperous.

When people express these feelings or preferences, they do so on the basis of certain criteria in their minds. Their judgement is based upon indicators that lead them to conclude and express that opinion. These are judgements that require a sound basis on which to proclaim. This warrants the use of a measuring mechanism and it is in the process of measurement that knowledge about variables plays an important role.

The definition of a variable:
An image, perception or concept that can be measured hence capable of taking on different values is called a variable.

The difference between a concept and a variable:
Concepts are mental images or perceptions and therefore their meaning varies markedly from individual to individual. A concept cannot be measured whereas a variable can be subjected to measurement by crude/refined or subjective/objective units of measurement. It is therefore important for the concept to be converted into variables.

Concepts, *indicators* and variables:
If you are using a concept in your study, you need to consider its operationalisation that is, how it will be measured. For this, you need to identify indicators- a set of criteria reflective of the concept which can then be converted into variables. The choice of indicators for a concept might vary with researchers, but those selected must have a logical link with the concept.

Types of measurement scales:
Measurement is central to any enquiry. The greater the refinement in the unit of measurement of a variable, the greater the confidence, other things being equal, one can place in the findings. S.S.Stevens has classified the different types of into four categories:

- Nominal or classificatory scale
- Ordinal or ranking scale
- Interval scale
- Ratio scale

The nominal or classificatory scale:
A nominal scale enables the classification of individuals, objects or responses into subgroups based on a common/shared property or characteristic. A variable measured on a nominal scale may have one, two or more subcategories depending upon the extent of variation.

For example, 'water' or 'tree' have only one subgroup, whereas the variable "gender" can be classified into two sub-categories: male and female. 'Hotels' can be classified into ---- sub-categories. The sequence in which subgroups are listed makes no difference as there is no relationship among subgroups.

The ordinal or ranking scale:
Besides categorizing individuals, objects, responses or a property into subgroups on the basis of common characteristic, it ranks the subgroups in a certain order. They are arranged either in ascending or descending order according to the extent a subcategory reflects the magnitude of variation in the variable.

For example, 'income' can be measured either quantitatively (in rupees and paise) or qualitatively using subcategories 'above average', 'average' and 'below average'. The 'distance' between these subcategories are not equal as there is no quantitative unit of measurement. 'Socioeconomic status' and 'attitude' are other variables that can be measured on ordinal scale.

The interval scale:
An interval scale has all the characteristics of an ordinal scale. In addition, it uses a unit of measurement with an arbitrary starting and terminating points.

The ratio scale:
A ratio scale has all the properties of nominal, ordinal and interval scales plus its own property: the zero point of a ratio scale is fixed, which means it has a fixed starting point. Since the difference between intervals is always measured from a zero point, this scale can be used for mathematical operations. The measurement of variables like income, age, height and weight are examples of this scale. A person who is 40 year old is twice as old as one who is 20 year old.

Constructing hypotheses:

As a researcher you *do not know* about a phenomenon, but you *do have a hunch* to form the basis of certain *assumption or guesses*. You test these by collecting information that will enable you to conclude if your hunch was right. The verification process can have one of the three outcomes. Your hunch may prove to be:

1. Right;
2. Partially right; or
3. Wrong.

Without this process of verification, you cannot conclude anything about the validity of your assumption. Hence, a hypotheses is a hunch, assumption, suspicion, assertion or an idea about a phenomenon, relationship or situation, the reality or truth of which you do not know. A researcher calls these assumptions/ hunches hypotheses and they become the basis of an enquiry. In most studies the hypotheses will be based upon your own or someone else's observation. Hypotheses bring clarity, specificity and focus to a research problem, but are *not essential* for a study. You can conduct a valid investigation without constructing formal hypotheses.

The functions of hypotheses:

• The formulation of hypothesis provides a study with focus. It tells you what specific aspects of a research problem to investigate.
• A hypothesis tells you what data to collect and what not to collect, thereby providing focus to the study.
• As it provides a focus, the construction of a hypothesis enhances objectivity in a study.
• A hypothesis may enable you to add to the formulation of a theory. It enables you to specifically conclude what is true or what is false.