



## Operational Definitions

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### Objectives

At the end of this module you will be able to

- Understand the concept of operational Definition
- Enlist the attributes of Operational Definitions
- Identify the terms from the research title whose Operational Definitions are required to be written
- Evaluate operational definition to point out the mistakes made

### Introduction

We know that lot of inputs go into a research. The findings of the research are not only useful for the next researchers in that institution, but sometimes the research is referred by many all over the nation, sometimes all over the world. Hence it is essential that the meaning with which the researcher has written a particular concept, the other readers or researchers understand the term in the same way. Hence it is essential that the researcher makes the way in which the terminologies are defined for that research. Thus here comes the importance of operational definitions.

### Content

#### 3.1 What is Operational Definition?

Let us see some examples so that we understand the meaning of the terminology in a better manner. Suppose in a research there are variables like giftedness, academic achievement or creativity. Now the meaning of gifte3dness may be understood by one



person in a certain manner while another person may define the term in a different manner. One person may say that if the score of 96 – 100 is obtained, then the person is gifted. The other person may say that if the score of 85 to 100 is obtained, then the person is gifted. If there are variations in the concept of understanding of giftedness, then may be there will be deviations in the analysis, even further in research findings. In order to have the common understanding between the researcher and the reader, the researcher needs to “operationally” define the term giftedness for that particular research. So if the researcher declares that the students scoring equal and above 97 % will be considered as gifted in that research, then even the readers know whom to consider gifted in that research. It then becomes even the responsibility of the reader to look at the research from that frame that the researcher has set for his or her research. Similarly if the terminology ‘weaker students’ appear in the title, that needs to be operationally defined.

Thus the term operational definitions can be defined as the way in which the research is going to identify a particular person as a sample, or the way in which a particular attribute would be measured in that research.

### **3.2 Attributes of Operational Definitions**

1. They origin from theory. So they cannot deviate from what the theory says about the weaker students.
2. It needs to specify how the term will be measured or observed in that research.

Once the operational definition is given the researcher is bound by that definition and the framework that the operational definition gives to the researcher. It then becomes easier for the readers or evaluators to understand the research in that context or to see the research from that lens that the researcher has picked up for himself or herself.

### **3.3 Whose Operational Definitions**

While giving the operational definitions the terminologies are picked up from the research title. When a research title is written the researcher takes a judgment whose operational definitions are needed and those words or group of words are picked up for writing operational definitions.

The very purpose of having operational definitions is making an ease for the researcher to measure that variable. Hence operational definition is very precise and unambiguous. Even if some other competent person is to measure that variable, that person should be able to measure or classify that particular entity or group of people in the same manner



as the researcher has done. Thus the operational definition gives the frame of reference for the complete research work.

We shall see a few examples – an example of a title and the a few operational definitions form that title. The title is “A Comparative Study of Behaviouristic and Constructivistic Techno-andragogy with reference to Teacher Education”. In this title there are many terminologies that need to be operationally defined – comparative study. behaviouristic, constructivistic, techno-andragogy and teacher education. For discussion we have selected a few of them – techno-andragogy and comparative study. We shall see some of the characteristics of operational definitions through these definitions.

- **Techno-andragogy:**

It is defined here as the application of the andragogical principles to teaching-learning process through web 2.0 tools. One is familiar with the term technology as well as with the term andragogy. So here while defining the term techno-andragogy the attributes of technology as well as those with andragogy are mixed. And thus the definition is formed. But even in technology the researcher has considered only Web 2.0 tools. Hence a mention of that appears in the operational definition.

- **Comparative study:**

Why do we need to define this term? Imagine that there are three persons looking at the same comparisons. Person A may have considered three attributes, person B might have considered another 3 or 4 attributes, and person C may come up with another set of attributes. In order to fix the attributes that the researcher has taken into consideration for one’s research, it is essential that the terminology like comparative study is operationally defined. Here the term has been defined as “Comparison on the aspects like Teaching performance, Cognition, Meta-cognition, Interactivity during techno-andragogical Treatment, reaction of student teachers to the techno-andragogical experiences” Thus it is clear the researcher has chosen these five aspects for comparison. If some other research is conducted on the same line that researcher may consider some other aspects for comparison.

We shall see one more example. Here the title is ‘Study of Mental Ability of standard eight students in ZP schools’. In this title the terminology ‘mental ability’ needs to be defined. Here is an example where the researcher has defined the term operationally, but for that one has chosen the definition that someone else has given or used the standard given by someone else. For measuring the mental ability Raven has developed a tool – Standard Progressive Matrices. The researcher has decided to accept the scores of this standard Progressive Matrices for deciding mental ability. Hence the operational



definition comes as the mental ability as measured by Raven's Standard Progressive Matrices. Thus this was another modality to give operational definition.

### **3.4 Mistakes made while writing Operational Definitions**

Let's discuss the typical mistakes sometimes made by researchers while writing operational definitions.

- **Giving only the final definition without giving the theoretical background for the same:**

Let us take an example of the term intelligence. Many psychologists have defined the term in a variety of ways. There are many intelligence tests. So even they have defined the term. The researcher first needs to understand and the also give this theoretical background of the term intelligence before one attempts to operationally define it. In this case there are two possibilities – the researcher may say that the definition given by 'x' intelligence test is accepted as operational definition for the present research or the researcher may consider marks of say the previous exam as an indicator of intelligence. But whichever modality the researcher has adopted, it is the responsibility of the researcher to give the definitions given by the other psychologists.

- **The researcher gives the definition that does not depict how the variable would be measured:**

The very purpose of operational definition is the 'measurement' aspect of the same is clear. So unless this aspect of the measurement of observation is clearly mentioned, there is no point in defining the term operationally.

Imagine that a terminology like personality is to be defined and the researcher defines the term as personality is the collection of all the attributes that the person carries. Theoretically this definition may be correct, but does not tell how the personality will be measured in that research. Such kind of mistake need to be avoided by the researcher.

- **Sometimes in the attempt to define the key terms operationally, the researcher lands up defining all the terms in the title operationally.**

In this attempt the terms that are not so important or the terms that need not be operationally defined, or need not be known how they are to be measured, even those definitions are given. Let's consider an example – Study of reasons of absenteeism. We all have the common understanding of the terminology 'reasons' as



the list of factors that have their impact on something happening – in this case the factors that lead to absenteeism. Thus in this case that much understanding of the term 'reasons' is sufficient and one does not need to define the terminology 'reason'.

- **Confusion between operational definitions and breaking down the term in parts:**

Imagine a terminology like 'audio-visual aids'. The term is formed from smaller parts like audio, visual, audio-visual, and then audio-visual aids. In this case if the researcher starts giving definitions of audio, visual, audio-visual, and then audio-visual aids, it will be really unnecessarily and deviating from the main definition of the term audio-visual aids. So especially while giving definitions of the terms that are formed from two or three words, there is no need to go into the fractional words and then come to the final words. One should directly give the definition of the terminology audio-visual aids.

### **Conclusion:**

Operational definition is the first term that the researcher comes across as soon as the title is fixed. With the clear understanding of which terminologies need to be defined and how they will be defined, and how they will be measured, the aspects such as what bearing it has on the further connections get clearer to the researcher once operational definitions are put in as detail as possible. In some other session we shall be discussing about the experimental research. But in that one of the threats to external validity is poorly elaborated operational definitions. Thus the terms that are defined right in the beginning has so much bearing on the various decisions and rigor in the research. Hence it is very essential that the researcher pays keen attention to the detailing of operational definitions are one's rest of the path will fall in place.