Module 4

PROCESS OF ACTION RESEARCH

INTRODUCTION

After studying second module, you may have understood the definition, Characteristics, title writing and steps of conducting Action Research. In this module, you will study the process of Action Research under headings like Title, Objectives, Hypothesis, and Methodology. Under Methodology, you will study Sample, Tool, Experimental design, Procedure of Data Collection and Data Analysis. As you have already studied that Action Research is to be conducted by the teacher who faces problem in the classroom or school in different aspects. With the help of Action Research, one can find the solution of the issues related to classroom and other aspects of the school so that the findings of Action Research benefit the school.

After going through this module, you will be able to -

- Write the Title of Action Research
- Write the Objectives according to the Title of the study
- Write the Hypothesis according to the Objectives of the study
- Describe the Methodology of conducting Action Research
- Analyze the data and interpret the results of Action Research
- Write the discussion of the study
- Write out the findings of Action Research

TITLE OF ACTION RESEARCH

Being a teacher you understand that there are individual differences in the classroom due to which students understand and learn the subject matter to different extent. Some students have a good understanding of some subjects and some are not good in any subject. It has often been observed that students do not understand the concepts, due to which they do not understand the content based on concepts. It is very necessary to understand the concept in order to understand the subject matter. A teacher of Mathematics, who teaches through lecture method to students of class VII might have experienced that students have difficulty in understanding the concept "Fraction" in Mathematics. Therefore the teacher thought of doing Action Research to find out the solution of the problem that is why students don't understand the concept of "Fraction" when taught through Lecture Method. With reference to this problem the title of Action Research can be written as below:

"Effectiveness of Activity Based Method on the basis of Achievement in Fraction in Mathematics of Class VII students of Kendriya Vidyalaya No.1, New Delhi"

You must have read and understood that the title of Action Research should give information related to variable, population / sample / group of the study and Type of Research / Method of Research. From the above title it is clear that the variable is Achievement in Fraction in Mathematics. Class VII students of Kendriya Vidyalaya No.1, New Delhi is the sample of the study. The sample of the Action Research must be very narrow and specific. From the above title it is clear that the teacher wants to teach Fraction from Mathematics through Activity based Method because most students faced difficulty in solving questions related to Fraction. It indicates that the teacher has to do experiment to see the effect of Activity based Method on Achievement in Fraction in Mathematics. Thus the above mentioned title of an Action Research gives information about variable, group and type of research. Hence it is an appropriate title of Action Research.

OBJECTIVE

After finalizing the Title of Action Research the researcher has to write the objective(s) of the study. The objective of the study gives direction to the whole study. On the basis of the above title more than one objective may be formulated. More objectives will help the researcher to find out solutions of various aspects of the problem. An Action Research should be conducted by the teachers only as s/he better understands the problems of her/his classroom and can implement the results for the benefit of the students of her/his classroom. However, one objective has to be written. For the above mentioned Title of Action Research one objective has been formulated which can be written as given in the following:

To compare mean score of Achievement in Fraction in Mathematics of class VII students before and after having taught through Activity Based Method

HYPOTHESIS

By now you know that Hypothesis is a tentative solution of a problem. The researcher has to formulate hypothesis for the above stated objective of Action Research. A researcher cannot formulate hypothesis according to his own wish because there must be basis of formulating hypothesis. You have studied that the basis of formulating Hypothesis are Review of Related Literature and Theory. Further you also know that on the basis of Review of Related Literature, the researcher can formulate either Null Hypothesis or Directional Hypothesis. There must be strong base to formulate Hypothesis in directional form. In absence of strong base the researcher has to formulate hypothesis in Null form. For the above mentioned objective, the following Null hypothesis can be formulated.

There is no significant difference between mean scores of Achievement in Fraction in Mathematics of students before and after having taught through Activity Based Method.

METHODOLOGY

You have studied under Methodology that Action Research must include Sample, Tools, Experimental Design, Procedures of Data Collection, and Data Analysis. The Methodology for the above mentioned Action Research is as given below:

Sample

You have studied that Purposive Sampling Technique is used to select the sample for Action Research. In Action Research, sample is not the representative portion of the population. The teacher takes only those students who are directly related to the problem. The finding of Action Research cannot be generalized because the group does not represent the population of the study.

It is clear from the above mentioned Title that the Action Research is to be conducted on those students of Class VII of Kendriya Vidyalaya No.1, New Delhi who has difficult in understanding the concept of Fraction as observed by the teacher during teaching. As a result the teacher thought to conduct Action Research on students of Class VII who faced difficulty in solving numerical problems related to Fraction in Mathematics. Therefore for the above mentioned study Purposive Sampling Technique is to be used to select sample.

Tool

You already understood that each research has at least one variable related to which data are to be collected. For collecting data, relevant tool has to be used. You also know that Tools are of two types, namely, standardized and non-Standardized. Quality of data depends on the quality of tool used. The reliability and validity of Non-standardized tool are not known. Generally Action Research is conducted by a working teacher who may not know the technical procedure of standardization of tool. So the teacher has to use non-standardized tool to collect information or data for the Action Research. Also teachers administer tools prepared by themselves which is non-standardized in nature. In the above Action Research Achievement in Fraction in Mathematics Test will be the tool for the study. This test will be prepared by the teacher only. The teacher will decide number of questions to be included in test, type of questions and duration of test, maximum marks, etc. Teacher knows that questions are of various types such as essay type questions, short answer type and objective type. Mostly teacher prepare short answer type and objective type questions for Action Research. Number of question depends on the subject matter and must represent to the whole topic chosen for Action Research.

Experimental Design

Action Research is experimental in nature. Therefore the researcher must use Experimental Design while conduction research. Already you have studied in Module 2 that Experimental Designs are classified into three categories, such as, Pre –Experimental Design; Quasi – Experimental Design; and True –Experimental Design. For Action Research the most suitable Experimental Design is Pretest –posttest Single Group Design which belongs to the category of Pre-Experimental Design. You have studied that in Pre-experimental Design one takes the

group of students where s/he is facing problem, so the group is not the representative of population to which it belongs. Therefore the findings of Action Research cannot be generalized. In this module one title and one objective is given for Action Research. For this Action Research the suitable Experimental Design is Pretest-posttest Single Group Design. The layout of the design is given below:

O_1 X O_2

O_1 = Pre-Test of variable of the Action Research

X = Treatment

O_2= Post-Test of variable of the Action Research

It is clear from the above layout that to start with Achievement in Fraction in Mathematics Test is to be administered to all students of the class where Action Research is to be conducted. This is denoted by O_1 and called Pre-Achievement in Fraction in Mathematics Test. Now the teacher teaches Fraction topic to students through Activity Based Method for one period of 30 minutes per day for 15 days. After 15 days, the same Achievement in Fraction in Mathematics Test is to be administered which was administered before started teaching with the help of Activity Based Method. This is denoted by O_2 and called Posttest-Achievement in Fraction in Mathematics Test.

PROCEDURE OF DATA COLLECTION

From the title of Action Research it is evident that Action Research is to be conducted on students of Class VII of Kendriya Vidalaya, New Delhi by Mathematics teacher who experienced that many students fails to solve numerical problems related to Fraction. The teacher first administers the Achievement in Fraction in Mathematics Test developed by her/him. After this s/he teaches Fraction with the help of Activity Based Method at the rate of 30 minutes per day for 15 days. Teacher only has to decide the activity to be done by the students in order to understand Fraction. At the end of the treatment the same Achievement in Fraction in Mathematics Test will be administered to collect data. This is known as Post-Achievement in Fraction in Mathematics Test. The duration of pre-test and post-test is decided by the teachers and it should be same for both pre-test as well as post-test. After this the response sheets of each student is to score for Pre as well as Posttests. The total scores thus obtained are to be used during data analysis stage.

DATA ANALYSIS

You have already studied in Module 2 that the data collected through the use of Pretest-posttest Single Group Design are to be analysed with the help of Correlated t-test or Paired Samples t-test. The formula to be used in analyzing the data has already been given in Module 2. However, the teacher can also use Statistical Package for Social Sciences (SPSS) to analyse the data.