CHAPTER III

RESEARCH METHODOLOGY

3.1 INTRODUCTION

Methodology chapter is very important for the research paper as this chapter represents in detail the plan and procedure of the study. From the methodology chapter, the reader can easily find out the population size and sample size, which research design was used, research tools and data collection procedure etc. Each and every things and work should organize in a proper planning. So, this study was organized in proper planning by researcher which was decided before the research. Here below all procedure and planning are explained.

3.2 POPULATION

Population is well defined small portion of Universe. In this study, the population were the students of the class IX of 61 KendriyaVidyalaya in Odisha state.

3.3 SAMPLE

Sample is a small representative portion of a papulation selected for observation and analysis. In this study, the researcher purposively selected the students of class IX of KendriyaVidyalayaBhadrak, Korkora, Arnapal road, Bhadrak, Odisha. Researcher randomly selected 70 students where 35 students were selected for experimental group and 35 students were selected for control group. So, the sample was the students of class IX of KendriyaVidyalayaBhadrak, Korkora, Bhradrak, Odisha. And the sample size was 70 students of this class.

3.4 SAMPLING

In this study, the researcher applied the following sampling techniques for sample selection and data collection.

- Purposive Sampling Technique
- Random Sampling Technique

3.5 VARIABLES

- **Independent variable**: - Method of Teaching (i.e. ICT Integrated Teaching and without ICT Integrated Teaching)
- **Dependent variables**: - Achievement scores in Economics
- **Intervening variables**: -Times of teaching, Self -study, Intelligence of students, stress, interest, family background, noise outside the classroom, attitude, socioeconomic status etc.
- **Variables controlled**: - Time of teaching, class size, classroom condition, presence of observer
- **Variables Uncontrolled**: - Intelligence of students, socioeconomic status, family background, self-study habits etc.

3.6 EXPERIMENTAL RESEARCH DESIGN

Experimental research designs are concerned with examination of the effect of independent variable on the dependent variable, where the independent variable is manipulated through treatment or intervention(s), and the effect of these interventions is observed on the dependent variables. In this study the effect of ICT integrated class (Independent variables) on the achievement test in Economics (Dependent variable), where the ICT integrated teaching was manipulated through treatment or intervention, and the effect of these interventions were observed on achievement test in Economics.

In this study, the researcher used **Quasi Experimental Research Design**. Quasi experimental research design involves the manipulation of independent variable to observe the effect on dependent variables. Here the researcher used quasi-experimental research design to established the causality (effect of ICT integrated class on achievement test in Economics) in situation where researcher was not able to randomly assign the subjects to groups for various reasons.

There are two main types of quasi experimental design as follows

1.Non-randomized control group design

2.Time series design

In this study, the researcher used "**non-randomized control group design**" which is also known as "**Non-equivalent control group design**". In this design, the researcher selected experimental group and control group without randomization. The **layout was** as follows:

Experimental Group(taught with ICT)= O(pre-test) X_1 (ICT based treatment)   O(post-test)

Control Group (taught without ICT) =   O(pre-test) X_2 (Without ICT based treatment)   O(post-test)

There were various methods for control intervening variables. The quality of experiment depends on a large extend on the control of intervening variables. Better the control, less the error and more pronounce the treatment effect. In this experimental research, there were many intervening variables, it is difficult to control all intervening variables and to know beforehand all the intervening variables. In this experimental research, the researcher used **Constancy of condition (Physical manipulation)** for control intervening variables. The researcher kept time factor constant throughout experiment both in experimental group and in control group. Other intervening variables like size of classroom, presence of observer, time factor, comfortableness sitting etc were kept constant in both groups.

3.7 DEVELOPMENT OF ICT INSTRUCTIONAL MATERIAL

The researcher had made an **ICT based project** on class IX Economics subject on chapter1 i.e. "THE STORY OF VILLAGE PALAMPUR". The researcher taught the learners through that ICT based project where she used pictures, cartoons, videos etc. Through this project learners enjoyed their class. The ICT based class made the class more interesting, joyful, interacting and made the understanding easier. The learners could easily link the concept of Economics with their day-to-day life. This ICT based project is added in the Appendix Index page.

3.8 RESEARCH TOOLS

The researcher used a standardized tool i.e. **Achievement Test** for data collection. The standardized tools are those which have objectivity, reliability, validity in nature. The researcher made a question paper on the first chapter of Economics" The Story of Village Palampur" of class IX. This question paper was consisting of part A which had 10 multiple type question (each question carried 1 marks) and part B which had 10 short questions (each question carried 2 marks). Before preparation of ICT project first the researcher discussed with the subject expert and got some ideas and their suggestions. After getting subject experts suggestions the researcher start her works. After the preparation of ICT based project, the

researcher analysed the chapter and made that achievement question paper. That achievement question paper was consisted with knowledge level question, understanding level question and reflective level question also. This research tool will be given in Appendix Index page.

3.9 PROCEDURE OF DATA COLLECTION

The researcher in her sample students of class IX of KendriyaVidyalayaBhadrak, Korkora, Arnapal Road, Bhadrak, Odisha selected two sections from Class IX studying in KendriyaVidyalayaBhadrak. These two sections are treated as two groups. Both the groups were pretested by administering an Achievement in Economics developed by the researcher previously in order to acquire the students' pre-experimental scores. Then the researcher randomly assigned the treatment. That is the researcher selected one group randomly and named this group as Experimental group and taught the chapter1 "The Story of Village Palampur" in Class IX Economics subject through already developed ICT instructional material. That teaching process was continued for 15 working days. After completion of teaching, the same achievement in Economics Test which was administered at the pre-test stage was administered at end of the treatment. During that time, the Experimental group were taught, the same chapter were taught to the subjects of Control group without ICT instructional material for three working days. At the end, same achievement test in Economics was administered to the Control group which was administered at pre-test stage.

3.10 STATISTICS FOR DATA ANALYSIS

The t-test assesses whether the means of two groups are statistically different from each other. In this analysis, **paired sample t-test** was used and data were analysed by using Statistical Package in Social Science (**SPSS**). The difference between scores for two group (experimental group and control group), the researchers had to judge the difference between their means relative to the spread or variability of their scores.