ABSTRACT

The study focuses on the development of a Computer Based Instructional Package in Physics at Higher Secondary Level and testing its effectiveness over the existing Activity Oriented Method of Instruction in realizing the objectives under different domains suggested by Mc Cormack and Yager (1989) in their Taxonomy of Science Education. In this study, the Investigator has adopted the pre-test post-test non-equivalent group design.

As a preface to the experiment, the Investigator developed a Questionnaire to find out the learning difficulties and the computer awareness of the higher secondary school students. Based on the feedback from the students the Investigator developed an interactive Computer Based Instructional Package in which innovative learning activities are provided to the learner through illustrations, pictures, graphics and animations in an interesting manner. A rating scale is developed and given to higher secondary Physics teachers along with the CD of the developed Computer Based Instructional Package to assess the effectiveness of the package. After that the experimental group was taught through the developed Computer Based Instructional Package and the control group was taught through the existing Activity Oriented Method of Instruction.

The changes in different domains of science teaching suggested by Mc Cormack and Yager such as Knowledge, Application, Process, Attitude, and Creativity were measured by using an Achievement Test, Process Skill Assessment Test, Scientific Attitude Scale and a Scientific Creativity Test. An intelligence test (Raven’s Progressive Matrices) was also administered to both the groups. The pre-test, post-test and gain scores were analyzed by using appropriate statistical techniques such as Test of significance of difference between means for large and small independent samples, One-way ANOVA with 2x2 factorial design, ANCOVA and One-factor repeated measures ANOVA.

The statistical analysis of the collected data confirms the superiority of the developed Computer Based Instructional Package over the existing Activity Oriented Method of Instruction on the achievement in physics of the higher secondary school
students with respect to different domains such as Knowledge, Application, Process, and Attitude. But as far as Creativity is concerned, the achievement of both the experimental and control groups were more or less the same. Also the study revealed that the contribution of the Computer Based Instructional Package on the Achievement in Physics of the higher secondary school students in different domains such as Knowledge, Application, Process, and Attitude is different and there seems to be no significant effect of intelligence on the achievement of students while using the Computer Based Instructional Package. The results of the One-factor Repeated Measures ANOVA revealed that retention in the achievement of higher secondary school students taught through Computer Based Instructional Package is high as compared to the students who were taught through the Existing Activity Oriented Method of Instruction.