

The work reported here is an investigation about the effectiveness of two teaching methods (i.e. Ausubel teaching method and traditional teaching method) in the teaching of physics at secondary level in Pakistan. The main objectives of this study were to compare the relative effectiveness of these teaching methods on students' achievement and attitude, and to find out the impact of pre-lab on the learning of the students. This experimental work was carried out for the period of thirty-five weeks in the physics classroom and laboratory of Govt. Comprehensive School, Jhelum (Pakistan). Sixty-two secondary school science students of class X were randomly selected for this experiment. The posttest-only equivalent group design was used for this study. It involved two groups; experimental and control. These groups were equated on the basis of marks achieved by the students in a test of 8th class science. The different tools used to collect the data were; the Achievement tests, Post labs, and Attitude scale. Experimental group was taught through Ausubel's teaching method while control group was taught through Traditional.

To measure the achievement of the students in the science theory and practical, the researcher administered the following tools; Experimenter's tools 1 & 2, and post-labs. The other achievement tests used in the study were the Term Tests 1 & 2 administered by the school, and the question paper of physics theory and practical constructed, administered and evaluated by the Board of Intermediate and Secondary Education Rawalpindi (SSC annual examination 2005). To measure the scientific attitude of the students, an instrument was constructed and validated and then administered to the whole sample. Data collected by tools were analyzed by the application of software, SPSS and presented in the form of mean scores. To compare the mean scores of experimental and control groups, t-test was employed.

The study indicated that Ausubel's teaching method was found more effective than traditional teaching method in improving the achievement of the students in the subject of physics as measured by experimenter's tools, term tests and in the SSC examination, 2005. The study also showed that the use of pre-labs significantly improved the performance of the students. It has found in various significant indications that the new way of teaching has improved performance of the students in various tests and some evidence that attitude have changed.

The nature of pre-lab and post-lab need more improvement and further investigation at other levels and regions. Their relative effectiveness should be evaluated so that the more effective tool can be used in the future. The persistence increase in the standard deviations for the experimental group suggests that not all students benefited equally. This gives rise to another area 'cognitive learning styles' that should be explored. This study can be seen as an exploratory study and offers encouragements that the new approach has considerable value for the learners. It needs replication, using many teachers, with boys and girls, and in all disciplines of science.