ABSTRACT

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Title of the Study- DEVELOPMENT OF PROGRAMMED LEARNING MATERIAL ON "MATTER" IN CHEMISTRY AND EVALUATE ITS EFFECTIVENESS AT SECONDARY LEVEL

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Key Words- Programmed Learning Material, ICT, Individualized Instruction, Self-Learning, Levels of Intelligence.

Information and Communication Technology (ICT) has made great progress towards the improvement of quality of education .Also to meet the increasing demands in the educational context of digital India, it is imperative to use technological devices in teaching-learning process. These technological devices are expected to enhance the academic performance of students by the application of   better techniques of educational technology in the system of education.

Since it was also established by many researches that every student has different learning preferences, so it is important that course material is presented in such a way that no student is unfairly get disadvantaged. Thus, when presenting learning material to students, it is important that all student learning styles are supported. Programmed Learning is one of the most important contributions of educational technology for individualized instructions. Programmed Learning may be viewed as a standardized self- instructional system, in which the learner interacts with each step in a programme presented through instructional material. Here in Present study Researcher had tried to develop a Programmed Learning Module on web page. Which can be easily accessed by students anytime anywhere according to their pace and time . In the present study Programmed Learning Material is a way of presentation of learning material in small steps called frames with the help of computer. This involves the idea that learning behaviour can be shaped and encouraged by providing correct answer to students, which act as reward. In this study it is a kind of computer based self learning material.

The Objectives of this study were the-

1. To Prepare the Computer based Programmed Learning Material on "Matter in our surroundings" and "Is Matter around us pure" based on the content of NCERT Science text book for class IX Students.
2. To Evaluate the Effectiveness of Programmed Learning Material as compared to Conventional Method of Teaching on the Performance of class IX Students.
3. To Compare the Effectiveness of Programmed Learning Material and Conventional Method of Teaching on the Performance of class IX Students with different levels of Intelligence.
4. To Compare the Effectiveness of Programmed Learning Material and Conventional Method of Teaching on the Performance of class IX Boys and Girls Students.
5. To Find out the Opinion of the class IX Students towards the Programmed Learning Material.

A Quasi Experimental design was adopted for the study This study involved three dependent variables as -Treatment Groups (Experimental Group Vs Control Group), Intelligence levels (Above average Vs Average Vs Below average) and Gender (Boys Vs Girls) and one independent variable as- Achievement scores of students. The Sample for the present study comprised of 180 students of class IX .The tools of the present study comprised of Raven's Progressive Matrices, Pre and Post achievement tests were developed by the researcher. A PLM opinionnaire and rating scale was developed by the researcher. The data was analysed by using the Mean, S.D., t-test, (ANOVA) and (ANCOVA).

The fundamental objective of present study was the development of the computer based programmed learning material (PLM) and evaluation of its effectiveness at different levels of intelligence and gender. In this research work researcher developed the computer based programmed learning Material on the topics "Matter in our surroundings" and "Is matter around us pure." It was prepared in offline mode by using power point , hyperlink, pictures, smart art, visual basics and animations etc .This programmed learning material was uploaded on the website **www.selflearnonline.com** with the help of technology ASP.NET,NET Framework4.0 IDE:Visual Studio 2010 and Database : SQL Server2012. Analysis of data revealed that the teaching through PLM was more effective for the students of all levels of intelligence. The teaching through the programmed learning material was equally effective for both the Genders (Boys and Girls).

This PLM was a computer based self learning programmed learning material so the researcher conclude that in the making of digital India programme these kind of ICT based self learning materials can be used by the educators, teachers, researchers and various centers for educational technology. They can also develop and promote programmed learning material on various science and other subjects that can supplement regular classroom teaching. In MOOCs and short-term courses the use of PLM should be enhanced so that students can learn from a distance at their own pace. The programmed learning method of teaching enables the teacher to diagnose the problems of individual learner and can adopt some remedial measures for such children. This PLM can also be used by teachers for remedial measures which provide extra knowledge and clears their concepts.

The previous studies and present study concludes that the PLM developed and presented either in the software or hardware form can help the students to perform better in their academic achievements.