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## **A comparative study of achievement in life science of 8<sup>th</sup> class students using conventional methods and programmed learning**

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### **Abstract**

In teaching -learning situations, methods of teaching play effective role. Programmed learning is a method of self-instruction, whereby, the learner proceeds through instructional material in short steps, at his own pace, receiving immediate knowledge of the correctness of his answer. Keeping all this in view, the investigator has decided to develop linear style programme and compare it with the conventional methods of teaching. To study its effectiveness, Experimental Method was used in present study. A sample of 50 students of class 8<sup>th</sup> was selected from Surya Public School, Jyotisar, Kurukshetra (Haryana). These students were divided into two groups on the basis of the scores obtained by them in previous class. The statistical techniques used in this study was Mean, Standard Deviation, Correlation, Standard Error and T-test to analyse the data. Thus, the study assumes its significance and relevance in the present context.

**Keywords:** Programmed learning, conventional, methods

### **Introduction**

In the teaching learning situations, methods of teaching play an important role. In the traditional method of teaching, individual differences are not taken care of, the students remain passive most of the time and it is highly teacher - centered. To overcome these defects, it is essential to take the help of new innovations in the field of methods of teaching. Programmed learning is a new innovation. The basic assumptions with which the programmed learning was started are greater participation of the learner, greater autonomy to the learner in following his own pace of learning, a more frequent feedback, reinforcement and a quicker knowledge of result. Many research studies have been carried out in the field of programmed learning. Most of the studies have reported that programmed learning has increased the achievement of students. This however may not be considered as a generalized statement because the studies did not employ the same experimental designs and same sample. Thus, the present study was undertaken to explore the area in depth. In the present study an attempt has been made to develop programmed material in life science for class viii students and to find out its effectiveness in terms of achievement of students. Therefore, it has been termed as a software instructional technology. Keeping all this in view, the investigator decided to develop linear style programme and compare it with the conventional method to judge its effectiveness.

The linear style of programming was developed and popularized by B.F. Skinner on the basis of his theory learning called ‘Operant Conditioning’. This programming style is also known as “Operant Conditioning Model” or “Skinnerian Model”. This style is based on the assumption that human behavior can be shaped or conditioned gradually, step by step, with the suitable reinforcement for each desired response. Consequently, in linear programming the instructional material is sequenced into a number of meaningful small steps called frames.

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These frames are presented to the learner in the arranged sequence, one at a time and the learner is required to respond actively at each step. Immediately after responding or confirmation of learner's correctness of his/her response, it reinforces his behaviour and he may be motivated to learn the next frame in arranged sequence. The learner starts from his initial behavior to the terminal or target behavior, following the straight line sequence. It is also called extrinsic model of programming as the programmer extrinsically controls the whole instructional sequence.

### **Mandatory and Optional Principles of Programmed Learning**

1. **Mandatory Principles:** According to Edward F.O. Day (1971), the mandatory principles are those which are critical and essential for distinguishing programmed materials from other forms of instruction such as conventional class-room instruction, text book-based instruction etc.

#### **These mandatory principles are**

- (i) The principle of objective specification
- (ii) The principle of empirical testing
- (iii) The principle of self-pacing

2. **Optional/Obligatory Principles:** The optional principles are those which may or may not be present in programmed materials.

#### **The following three principals have been identified as optional principles**

- (i) The principle of active responding
- (ii) The principle of immediate reinforcement
- (iii) The principle of small steps.

### **Review of the related literature**

To make the study in line with the researches already done, it is advisable to survey the existing studies to avoid duplicity and wastage of human energy, time and money. It is presumed that the survey of the related literature will make the present investigation more direct and to-the-point. In the present chapter a survey of the various important researches in the field of various methods of teaching and programmed learning have been reviewed.

Laxmindhar barik (2000) developed a self-instructional module on "energy" for seventh grade students.

Jaya (2002) developed a linear programme for empirical validation on "Acid Bases and salt" for seventh grade students.

Ashok Kumar (1996) developed a self-instructional module on "photosynthesis" for sixth grade students.

Pandey (1980) covered a sample of 60 students of class IV of the Central School, Sanchi (Bhutan). He found that the programmed text was superior to other methods and that the high- and low-income group students following the programmed text were distinctively superior to those who had traditional teaching with home assignment.

Seshadri (1980) developed a linear programme of 2074 frames for Mathematics for class IX. The entire syllabus throughout the whole academic year was covered. She found that the strategy having PLM as its major component worked better than the traditional mode of teaching.

Mavi (1981) developed a programmed text in Physical Geography for High School students and covered the topics Programmed Learning material was tried on an

experimental sample of Ninth grade students and found effective.

Desai (1986) developed a programmed material on "Heat" in Physics for pupils in standard XI in the school of Bombay. He found that pupils took active interest in reading and learning through programmed material.

Partha Sarthi (1999) developed a self-instructional module on "soils" for seventh grade students. Sushila (2003) developed a linear programme for empirical validation on "Atmosphere" in geography for seventh grade students.

Divya (2010) developed Programmed learning material in science on "coal and petroleum" for 9<sup>th</sup> grade students.

### **Objectives of the Study**

1. To study development of a linear programme.
2. To find out the difference between the achievement in life science of class 8<sup>th</sup> students if they are taught by using conventional method and programmed learning.
3. To find out how does the achievement.

### **Hypothesis**

In order to attain the above given objectives, null hypothesis was framed.

"There exists no significant difference in the mean achievement of two groups of students if one group will be taught by using Conventional Method and other group by Programmed Learning."

### **Delimitations of the Problem**

1. The sample was delimited to one school only.
2. The sample was delimited to students of 8<sup>th</sup> class.
3. Only to the two methods of teaching i.e. Conventional Method and Programmed Learning.
4. To life Science only.
5. Only to linear style of programming.

**Methodology:** The Normative Survey Method was used in present study.

**Sample:** The investigator had selected 50 students of 8<sup>th</sup> class from Surya Public School, Jyotisar (Kurukshetra).

### **Experimental Details**

As stated earlier, investigator wanted to compare the effectiveness of the old and new methods of teaching. It was therefore, essential to set up an experimental design for the evaluation of two methods. The sample under investigation was divided into two groups on the basis of their performance in previous class. The Group A was taken as Experimental group and Group B was taken as Control group. Each group had 25 students.

Group B was taught by conventional method by the investigator herself. The programmed material on the same topic was given to Group A. They were asked to learn the programme themselves. The instructions were explained to the students. They were asked that they have to construct the response for each blank space given in the programme on the basis of the information given in the frame.

### **Scoring Procedure**

For the purpose of comparison, the investigator gave the achievement test to each group after the completion of the topic. Each previously planned test has maximum marks of 25 and time allotted to the students was also of 25 minutes. In the test, each carried sub-item carried one mark and each

incorrect sub-item carried 0. The achievement of students will be compared by using appropriate statistical technique.

**Statistical Technique:** Mean, Correlation, Standard Deviation, Standard Error of Means and T- Test were used.

### Results and Discussions

Scores of Experimental group and control group on achievement test were noted and the analysis is shown in the following table

Group	N	Mean	S.D.	SE(M)	R	SE (D)	t-ratio	Significance
Experimental	25	15	1.915	.383	.004	.534	8.91	Significant
Control	25	10.4	1.855	.371				

Calculated t-value is =8.91

t-value from table at .05 level=2.06

t-value from table at.01 level= 2.80

Therefore, t-value is significant both at .05 and.01level. So, Null Hypothesis is rejected which shows the highly significant achievement of the experimental group over the control group. This meant that programmed learning is more effective than conventional method.

### Conclusions

The programmed learning material was found to be effective in terms of the achievement of the students. To meet the needs of individual difference, programmed learning should be incorporated into classroom teaching. It can be very efficiently used along with conventional method in single teacher school. It can be used in correspondence courses. It can be used as remedial course for the backward and the absentees. It can be used very successfully to modify the behavior of deviant children.

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