

## CHAPTER VI

### OUTCOMES OF THE STUDY

The study consists of the following four different aspects.

1. Development of the programmed text.
2. Experimental validation of the programmed text.
3. Study of attitude of students towards programmed learning as a method of instruction.
4. Study of achievement through programmed learning in relation to certain student characteristics.

Details regarding these aspects of the study have already been given in the last four chapters of the thesis. The present chapter gives the outcomes of the study corresponding to various specific objectives that have been stated in respect of the different aspects of the study.

#### Development of the Programmed Text

A programmed text on educational evaluation has been developed for its utilisation as instructional material

for B.Ed. students of the M.S. University of Baroda.

A brief description of the Programmed Text developed is given below.

**Title :** Educational Evaluation - A Programmed Text.

**Target Population :** B.Ed. students - Graduates with basic ability to read and comprehend simple English and with facility to perform fundamental operations of Arithmetic involving decimal numbers.

**Content :** The Programmed Text covers the course on 'Educational Testing and Techniques of Evaluation' prescribed for the B.Ed. students of the M.S. University of Baroda. The text is divided into the following six units.

Unit I - Educational Evaluation and Measurement - A.

Unit II - Educational Evaluation and Measurement - B.

Unit III - Essential Characteristics of a Good Instrument of Evaluation.

Unit IV - Major Evaluation Tools and Their Uses.

Unit V - Teacher-made Achievement Tests.

Unit VI - Elementary Statistics in Education.

The Programmed Text contains six criterion tests corresponding to the six units.

**Style :** Linear (but not a traditional Skinnerian type).

**Language :** English

**Length :** The frames are numbered separately for each unit. Number of frames in the different units are -  
Unit I - 114; Unit II - 114; Unit III - 143;  
Unit IV - 141; Unit V - 128 and Unit VI - 172.

The course is covered alongwith other courses of the B.Ed. programme in one full semester.

### Experimental Validation of the Programmed Text

This aspect relates to experimentally studying the effectiveness of the Programmed Text as instructional material for B.Ed. students of the M.S. University of Baroda. The experiment involves comparing the achievement effects produced by the Programmed Text with that produced through lecture method. Comparison has been made unitwise as well as by considering the Programmed Text as a whole.

- (1) There was no difference in the achievement produced by the Programmed Text and that by the lecture method, in respect of four of the six units, viz., Unit I, Unit IV, Unit V and Unit VI. There were significant differences in the achievement of students who learnt through the Programmed Text and of those who learnt through lecture method, in respect of Units II and III; the differences were in favour of the students who learnt through the Programmed Text.
- (2) Trend in performance on the six criterion tests was studied by applying time series analysis. It was found that there was a decreasing trend in the performance of students who learnt through the Programmed Text while there was an increasing trend in the performance of those who learnt through the lecture method. However,

in both the cases the slopes (Programmed Text : 1.54 and control group : 1.36) happened to be very small showing that the difference is not significant.

- (3) The effectiveness of the Programmed Text, as a whole, was studied by obtaining two indices, namely, mean performance on the comprehensive test and mean of the combined criterion test score. Achievement of students who learnt through the Programmed Text and those who learnt through lecture method did not differ significantly in respect of both the indices. This indicated that the Programmed Text, as a whole, was as effective as the structured lecture method adopted in the experiment warranting its utilisation in the regular instructional work. Based on the results of the experiment it is suggested that a suitable instructional strategy may be developed which would involve the utilisation of the techniques of library work, discussion and practical work alongwith the Programmed Text.

#### Attitude towards Programmed Learning

This aspect relates to the study of attitude of students towards programmed learning as a method of instruction.

- (1) An attitude scale was developed for measuring the attitude of students towards programmed learning as a method of instruction. The scale was standardised following the method of equal appearing intervals evolved by Thurstone.
- (2) The scale developed was used to measure the attitude of students towards programmed learning as a method of instruction. The scale was administered when the students had experienced learning through programmed instruction for about six weeks, so that the novelty effect of the experiment had worn off. It was found that 80.0 percent of the students had a favourable attitude while 14.29 percent were neutral and 5.71 percent were unfavourable.
- (3) In order to test the stability of the attitude of students, the scale was administered again at the end of the semester after the complete course had been covered. To check the stability of attitude as shown from the two measurements,  $\chi^2$  was calculated for the distributions of students into favourable, neutral and unfavourable categories under the two administrations of the scale. The value of  $\chi^2$  was found to be not significant indicating that the attitude of the students remained the same throughout the course. Stability was

checked further by computing rank correlation ' $\rho$ ', between the attitude scores obtained by the students during the first and the second administration of the scale. The ' $\rho$ ' was 0.38, which was positive and significant supporting the finding that the attitude of the students remained stable throughout the course.

#### Achievement through Programmed Learning and Student Characteristics.

This aspect refers to the study of achievement through programmed learning in relation to four student characteristics, viz., attitude towards programmed learning, intelligence, academic motivation, and English language reading comprehension. It also includes a study of the attitude of students towards programmed learning in relation to intelligence and academic motivation.

- (1) Product moment coefficient of correlation between achievement and attitude was 0.43 which was significant at 0.01 level. This indicated that students with more favourable attitude towards programmed learning as a method of instruction achieved higher through programmed learning.
- (2) Product moment coefficient of correlation between intelligence and achievement through programmed

learning was 0.45, which was significant at 0.01 level. However, no significant difference was found between the mean achievement scores of students belonging to low intelligence group and of those belonging to high intelligence group. It was concluded that although there was a significant relationship between intelligence and achievement, intelligence might not be taken as a factor causing differences in achievement through programmed learning.

- (3) Product moment coefficient of correlation between academic motivation and achievement was 0.33 which was just significant at 0.05 level. However, again, there was no significant difference in the mean achievement scores of students belonging to low academic motivation group and of those belonging to high academic motivation group. It was, again, concluded that although there seemed to be a significant relationship between academic motivation and achievement, academic motivation might not be considered as a causal factor in the achievement of students through programmed learning.

- (4) Product moment coefficient of correlation between reading comprehension and achievement through programmed learning was 0.59 which was significant

at 0.05 level. However, this coefficient of correlation came down to 0.41 which was significant only at 0.05 level, when the effects of attitude, intelligence and academic motivation were partialled out. A significant difference was found between the mean achievement scores of students belonging to low reading comprehension group and of those belonging to high reading comprehension group. It was concluded that English language reading comprehension ability of the students acted as a factor influencing their achievement through the Programmed Text.

- (5) There was no significant relationship between attitude of students towards programmed learning and their intelligence.
- (6) There was no significant relationship between attitude of students towards programmed learning and their academic motivation.

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