CHAPTER IV

ATTITUDE TOWARDS PROGRAMMED LEARNING

Continuance or discontinuance of a new practice in any situation depends upon the reactions of people concerned. When it comes to the question of adopting a new method of teaching at the university stage, three categories of people are directly involved, namely, students, teachers, and administrators. However, students at the university being adult learners, their reactions would carry great weightage in taking decisions about the adoption of any new practice. It is not surprising that even when administrators and teachers find a new practice sound for adoption, it may fail if the student community happens to have, in general, a definitely unfavourable attitude towards it and resists its adoption. Therefore, in adopting new practices particularly at the university stage, it is essential to check the acceptability of the new practice by the student community. In fact, forcing something on the students inspite of their disliking for it is not academically desirable also.

As one of the purposes of the present investigation is to study the adoptability of programmed learning for imparting instruction in a specific course, an attempt has

been made to measure the attitude of B.Ed. students towards this new method of instruction. Since no standardised tool is available for measuring attitude of university students towards programmed learning, an attitude scale has been first developed following Thurstone's procedure. First part of the present chapter gives a brief review of some studies of attitude of students towards programmed learning. The second part presents details regarding the development of the attitude scale. This is followed in the third part by presentation of details of the study of attitude of B.Ed. students towards programmed learning as a method of instruction.

Studies of Attitude

Several researchers have attempted to study the reactions of students towards programmed learning. But, only a few of them have used properly validated attitude scales for this purpose. Generally, investigators have contented themselves by using informal questionnaires to obtain the reactions of students to different aspects of programmed learning. Although such questionnaire information would indicate the overall reactions of students towards the new practice, it does not provide objective evidences

regarding their attitude towards its adoption.

Feldhusen (1962) collected the reactions of college students to auto-instructional programmes. He found that, in general, students felt that the individual pacing of the method was its primary advantage while the primary disadvantage was a reduction of contact between teacher and student; they also felt that it was a mechanical unintellectual kind of learning.

Hartley (1965) measured the attitude of students who were taking a long term course through programmed learning at two different points. He found that the extremely favourable attitude expressed after four weeks were significantly reduced in fervour after nine weeks. Frey et al. (1967), Noble (1968), and Noble and Gray (1968) also measured at different intervals, the attitude of students using a long instructional programme. Their findings supported the findings of the study by Hartley (1965).

Neidt and Sjogren (1968) administered a properly validated attitude scale to over 300 students. The scale was administered over five equally spaced testing periods. They also observed a consistent decline in the mean scores over the five testing periods.

Brinkmann(1966) used a questionnaire to study the attitude of students towards programmed instruction just experienced. He reported that most of the subjects agreed that programmed learning was a good way to learn, and that they could learn a great deal by using a programme. Nearly all of them disagreed with the statements that they did not have to think while learning through a programme or that programmed learning was boring method of learning. Not a single student considered the programme difficult and at the same time, no one felt that the whole programme was too easy.

Neidt and Meredith (1966) studied the nature of changes in student attitudes when programmed instruction was interpolated between conventional instruction experiences. Five parallel forms of a 26 item Likert type attitude scale were administered in counterbalanced order to 153 airmen studying at Lowry Air Force Base. They found that programmed instruction interpolated between conventional experiences was associated with pronounced changes in student attitudes; differential attitudes during programmed and conventional instruction were especially critical for high ability learners.

Krishnamurthy (1968) used a questionnaire to study the attitude towards programmed instruction of 45 second year

Medical students who had just completed a programme on Biostatistics. He found that the students, in general, had a favourable attitude towards programmed learning. Majority of them wanted to use programmed material for other subjects and also felt that they could learn better through such instructional material than through usual lectures.

Mullick (1968) used a mailed questionnaire, consisting of three open ended and three fixed answer questions to collect the reactions of 49 B.Ed. students who had taken a programme on 'Rank Correlation'. All the 49 students expressed that programmed lesson was easier than the conventional lesson. Fortyseven of them stated that programmed learning was more interesting and also that it increased the feelings of mastery over the subject of study; they preferred programmed lessons to conventional lessons. Students who expressed negative attitude felt that programmed lessons were unusually lengthy and not useful near the examination. By and large, an overwhelming majority of students favoured the introduction of programmed learning technique.

Desai (1968) obtained the reactions of school children towards programmed learning after they completed

a programme on Gujarati grammar. Analysis of their reactions indicated that they, in general, welcomed the new approach.

It is interesting to observe that in all the studies findings indicate that students, in general, hold a favourable attitude towards programmed learning. However, a closer examination of the details would show that the above conclusion has to be accepted with due reservation. Many of the studies, particularly the Indian studies have used programmes of short duration. It is, therefore, difficult to decide whether the attitudes expressed are independent of the novelty effects of the experimental conditions in which the attitude has been measured. This consideration becomes especially pertinent because of two reasons. In most of the studies conclusions have been drawn from reactions of students obtained through informal questionnaires; use of standardised attitude scale would have, perhaps, minimised the possibility that novelty of experimental conditions would influence student reactions. Secondly, in all the studies involving the use of long term programmed learning, a uniformly decreasing trend has been discovered in the favourability of attitude expressed by the students.

In view of the observations made above, in the present study, an attempt has been made to construct a valid scale for measuring students' attitude towards programmed learning as a method of instruction. Also, administration of the scale has been made twice. The two administrations have been properly timed in a long term course of programmed instruction, so that the influence of novelty effects on the responses of students is sufficiently controlled.

Construction of a Scale to Measure Students' Attitude towards Programmed Learning as a Method of Instruction

Generally, two methods have been frequently adopted in constructing attitude scales. These two methods are the method of summated ratings evolved by Likert and the method of equal appearing intervals evolved by Thurstone. The former method requires the administration of a pool of positive and negative attitude statements to a large number of subjects as a part of the standardisation process. Two criterion groups are formed within the large group based on their responses, to select the statements for inclusion in the final form of the scale. On the other hand, the method evolved by Thurstone does not require the administration of

the statements to the subjects during standardisation of the scale. It only requires the scale constructor to obtain the ratings of each attitude statement written, from a sizeable number of judges. These ratings are taken as the basis for evaluating the individual statements as to their suitability for inclusion in the final form of the scale.

Thus, in order to construct an attitude scale towards programmed learning following Likert's procedure one has to have access to a large number of students who have already experienced learning through programmed instruction. As large number of students who had already experienced programmed learning were not available, investigator in the present study, decided to adopt the method of equal appearing intervals evolved by Thurstone, in developing the scale for measuring attitude of B.Ed. students towards programmed learning as a method of instruction. Procedural details about the construction of the scale have been presented in the following.

Development of the Primary Pool of Statements :

The first step in the construction of an attitude scale following Thurstone's procedure is to develop a fairly large number of statements about the psychological object.

Agreement with each of these statements would indicate a specific degree of attitude possessed by the respondent towards the particular object. Finally, about 22 to 25 statements are to be selected from the pool to constitute the scale. Accordingly, the investigator with the help of the guiding teacher developed a pool of 55 statements about programmed learning as a method of instruction. Effort was made to ensure that this pool included statements which reflected all shades of feelings, towards the object, covering the whole attitude continuum.

Collection of Judges' Ratings :

The statements were individually typed on 55 cards of identical size and nature for being presented to the judges. Each judge was given one set of the 55 statements alongwith the following instructions :

> There are 55 statements typed on different cards. Each statement expresses some degree of favourableness or unfavourableness towards Programmed Learning as a method of instruction.
>
> You are requested to sort these statements into eleven categories of a continuum; viz., A B C D E F G H I J K; 'A' representing extreme unfavourableness and 'K' representing extreme favourableness, whereas 'F' would represent neutral position.

> Please note that you should not express your own feeling toward Programmed Instruction but you have to judge each statement as to what degree of favourableness or unfavourableness it expresses towards the Programmed Instruction.
>
> For each category there is a seperate envelope. After sorting them out you may pl ease keep the statements in the respective envelopes.

A question that arose at this stage was from how many judges should the ratings be obtained. Research literature on attitude scale did not provide any conclusive answer to this question. Thurstone and Chave (1929) in their pioneering work obtained ratings from 300 judges. However, in several subsequent researches it was found that reliable scale values could be obtained with much smaller groups of judges. For instance, Rosander (1936) reported correlations as high as 0.99 for scale values obtained independently from two groups with as few as 15 judges in each group. It is further interesting that in a study by Yadav, Govinda and Thomas (1974), which used the same pool of 55 statements developed for the present study, it was found that reliable scale values for attitude statements could be arrived at by obtaining ratings from even 20 judges. Considering the points noted above, in the present study, the 55 statements were got rated by 25 judges.

These 25 judges belonged to the research and teaching staff of the Centre of Advanced Study in Education at the M.S. University of Baroda. It was made sure that these judges had a fair knowledge about programmed learning as a method of instruction. Also, they were all well acquainted with the method of rating statements on an 11 point scale following Thurstone's procedure.

Final form of the scale :

Frequency distribution of the judges ratings for each statement was prepared. For each statement the median (scale value) and the quartile deviation (Q-value) were calculated. Statements with large Q-values were rejected. From the remaining statements, considering their scale values, 25 statements with atleast two of them belonging to each of the 11 scale positions were selected to constitute the final form of the attitude scale. The complete scale and the scale values and the Q-values of all the 55 statements are presented in Appendix 'B'.

Study of Attitude of Students towards Programmed Learning as a Method of Instruction

This study of attitudes has been conducted with the following two specific objectives.

(i) To determine the attitude of students towards programmed learning as a method of instruction.

(ii) To determine the stability of the attitude of group of students, as a whole, when it is measured at two different times.

Sample

Sample for the study consisted of 35 B.Ed. students of the M.S. University of Baroda who formed the experimental group of the validation study described in Chapter III of the thesis. It may be noted that these students studied the course on 'Educational Testing and Techniques of Evaluation' using the Programmed Text for one full semester. Also, it may be pointed out that this was a compulsory course and programmed learning was adopted as the regular instructional procedure; not as an additional programme alongwith lectures. This ensured that students gave their responses with seriousness but under natural conditions, which is essential for obtaining reliable measures.

Attitude Scale

Attitude of the students towards programmed learning as a method of instruction was measured using the

attitude scale developed by the investigator following the method of equal appearing intervals suggested by Thurstone. Details regarding this attitude scale have already been presented in the previous section of this chapter.

Measurement of Attitude

The attitude scale was administered once when the students had completed studying the first two units of the Programmed Text. By then, the students had experienced learning through programmed instruction for about six weeks, and also they had appeared for two criterion tests which formed a part of their periodical assessment in the course. Thus, when the scale was administered to the students they had already got adequate time and experience to have formed an attitude towards the psychological object.

Median of the scale values of all those statements of the scale which were endorsed by an individual was taken as his attitude score. Based on their attitude scores students were categorised as unfavourable, neutral, and favourable. This categorisation was made by considering the position occupied by a particular score on the 11 point scale on which the actual scale values of the attitude statements were distributed. Table 4.1 gives the distribution

of students into unfavourable, neutral, and favourable and the corresponding percentages.

Table 4.1

Distribution of Students According to their Attitude

	Unfavourable	Neutral	Favourable
No. of Students	2	5	28
Percentage	5.71	14.29	80.00

It may be noted that a large majority of the students have a favourable attitude towards programmed learning as a method of instruction. It is only 5.71 percent of them who are not favourably disposed towards this method of instruction.

Stability of Students' Attitude

To determine the stability of the attitude of students towards programmed learning, the scale was again administered to the students at the end of the semester

when the complete course had been covered. Stability of the attitude scores of the students obtained through the two administrations of the scale was taken as the index of stability in the attitude of the group towards programmed learning as a method of instruction. To check the stability of attitude as shown from the two measurements, χ^2 was computed for the distributions of students into unfavourable, neutral, and favourable categories under the two administrations of the scale. Stability was checked further by computing rank correlation, 'ρ', between the attitude scores obtained by the students during the first and the second administration.

Table 4.2 presents the distribution of students into unfavourable, neutral, and favourable categories under the two administrations of the scale.

Table 4.2

Distribution of Attitude Scores over Two Administrations

	Unfavourable	Neutral	Favourable	Total
Administration I	2	5	28	35
Administration II	4	7	24	35
Total	6	12	52	70

The value of χ^2 obtained from the data presented in Table 4.2 happens to be 1.356 which is not significant. This indicates that the attitude of the group as a whole has not changed from the time of the first administration of the scale to that of the second administration. In other words, it shows that the attitude of the group has been stable through out the course.

Rank correlation ' ρ ' between the attitude scores obtained by the students during the first and the second administration of the scale happens to be 0.37 which is significant at 0.05 level. This supports the earlier observation that the attitude of students towards programmed learning as a method of instruction remained stable through out the course.

Discussion of Results

Findings of the present study regarding the attitude of students towards programmed learning is in agreement with the findings of the studies reported earlier. Students, in general, seem to possess a favourable attitude towards programmed learning. However, results of the present study regarding the stability of attitude are rather contrary to the earlier findings. Hartley (1965),

Frey et al. (1967), Noble (1968), Noble and Gray (1968) and Neidt and Sjogren (1968) have uniformly reported that they observed a decrease in the favourability in the attitude of the group when measurement was done more than once over a fairly long period of instruction. But, in the present study, it is found that, the students on the whole possess a stable attitude towards programmed learning as a method of instruction which does not significantly change over a fairly long term of instruction.

In the context of the present study, an important implication has to be noted from the above findings. The fact that the students are generally favourable towards programmed learning indicates that the programmed text may be utilised with confidence as instructional material for B.Ed. students of the M.S. University of Baroda for the course on 'Educational Testing and Techniques of Evaluation'.

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