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RESEARCH ARTICLE

A COMARATIVE 'TRYOUT STUDY ON THE SINGLE STUDENT VERSUS A GROUP OF STUDENTS RELATED TO ANCIENT EDUCATIONAL PHILOSOPHY-A RESEARCH ARTICLE

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INTRODUCTION

New techniques in education incredibly affect on the traditional approach of teaching learning process. Among all innovations in recent past the approach that have gain acceptance is Programmed Learning. Programmed Learning has been considered as revolution in Educational Technology. This instructional strategy is based upon the principle of efficient and effective learning under controlled conditions. Programmed Instruction today has evolved to such a fine extent that it forms the throbbing heart of modern instructional technology. The aim of programmed instruction is to enable the learner through a pre-arranged sequence for the acquisition of information or skill. Because the sequence is programmed, we say it "Programmed Learning". In the present scenario, programmed learning facilitate conducive classroom situation as well as other situation in the developed countries. Innovative educational technology with the help of the psychological experiments has given birth to a new discipline 'Instructional Technology'. Its accent is designing, implementing and empirically validating the instructional procedure. It is a method of individualized programmed instruction in which the students remain active and is provided with immediate knowledge of results. The essence of programme lies in writing it in such a way that every student will be able to complete it without any mistake. Here emphasis is laid on provision for individual differences, small step presentation, active responding and immediate reinforcement by immediate knowledge of results. So Programmed Learning has provided valuable help in improving the task of teacher, smoothening the teaching learning process and enriching the educational goals. The concept of programmed learning could prove to be beneficial to our System of education as Indian Educational System is highly examination oriented and it is more authoritarian in its approach.

Too much load on memory work is stand against the psychological principles of learning. Considering the factor of individual differences, we can easily find out the limitations of traditional methods as it cannot satisfy each and every student's

demand. As both slow learners and fast learners sit in the same classroom, above average learners feel boredom and slow learners remain passive and day by day they become poorer in the subject. Something needs to be done to save the bright students from frustration and dull students from discouragement; only then decline in academics and increase in drop outs can be reduced.

Rationale

Programmed Instruction is one of the most innovative techniques of instruction, which teaches effectively and ensures mastery over the subject matter. It also sustain the motivation to learn and makes the learning affairs not only easy but also reinforcing. Programmed Instruction has shown a new path towards individualization of instruction. The problem of teaching can be solved effectively by the Programmed Learning strategy as it is based on behavioral psychology. Besides these, it stimulates the learner as it provides opportunity to proceed according to his own pace and abilities. Thus it caters to the need and demand of all students. Keeping in view the importance and popularity of the Programmed Learning in academic circles in our country and the increasing necessity for programmed learning material, the investigator decided to select the topic on a try out study on single versus a group of students related to ancient era educational philosophy for the students of M.Ed Class".

Operational Statement Of The Problem

Terminology

Construction

It means breaking down of the subject matter of the topic into continuous series of frames made of small steps.

Empirical validation

It is concerned with the Try-out of the programme on students of M. Ed class and finding of the error rate, programme

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density, sequence progression and testing of the validity hypothesis and evaluation on the basis of the criterion test measure.

Linear programme

It means step by step learning with the help of frames.

Objectives Of The Study

1. To work out the subject matter concerning the contribution of Lord Buddha to the field of education.
2. To delineate the subject matter to be used for the development of the auto instructional programme of linear style.
3. To write the objectives related to the content in behavioural terms.
4. To break the subject matter in the form of frames for the linear programme to be developed.
5. To provide sequences to the frames for proper sequence progression.
6. To write the responses for giving immediate feedback to the students of M.Ed class in the form of correct knowledge of the response for all the frames.
7. To provide spaces for responses so that they are hidden and are not visible in the first instance. As the students make their own response for the frame the actual response given at the hidden place is made visible so that students are able to get feed -back in the form knowledge of the correct response.
8. To develop a criterion test on the basis of the objectives (Objective based criterion test).
9. To administer the programme (Try-out on an individual, tryout and on a large group of M. Ed. students)
10. Administration of the criterion test for the M. Ed students after the learning through the programme is complete.
11. To organize the data obtained on the linear programme on educational philosophy of Buddha and the criterion test.
12. To subject the data in two analysis to workout the error rate, programme density (individual programme density and cumulative programme density) and sequence progression.

Delimitations Of The Study And Study Design

The study has the following delimitations

1. The subject matter is delimited to a topic from the syllabus of M.Ed Class on the Educational Philosophy of Buddhism.
2. The number of linear programming frames is also limited to 106 frames only.
3. The delimitations concerning Try out of the Programme on
 - I. Single student
 - II. On a group of 45 students

It has also been considered due to constraints of time and cost

1. The evaluation of the programme is delimited to find the
 - I. Error Rates
 - II. Programme densities and sequence progression.
2. This study has been confined to the Linear style programming only.
3. The medium of instruction of the programme is English so, it has been use full for English medium students only.

MATERIALS AND METHOD

Single student try out

An average M.Ed. student was chosen from the students of M.Ed. Class of this college. The investigator was face to face with the M.Ed. student i.e. the learner. The investigator clearly gave instructions after establishing rapport with the learner. The learner was asked to read the frames and make her own response for each of the 103 frames. The reaction time was noted (the time of response made for the first frame) and as the learner made her response for the first frame she was asked to tally her responses with the answer given under a slip of paper. The learner took out the slip to compare her response with the feedback response. As the response was correct the student gave a smile as if she was gesturing that she was satisfied. After it the learner was asked to read the next frame carefully and make her own response for the second frame. The learner again responded correctly when she had checked her response. In this way the learner read all frames one by one and made responses of the small frames. The investigator went on noting down the errors so that changes could be made in the programme. The following modifications were made after tryout on a single student of M.Ed. class.

- a. The language of the frames with serial numbers 27, 64 and 85 was changed to make these frames intelligible to the students.
- b. Some of the responses were reduced from two words to one word (Like Lord Buddha was changed to Lord.....) responses and the programme was then modified by introducing changes in language, subject matter and prompts in the frames.
- c. Prompts are added to the introductory Frames.

A Group Of Students (N=45) Try Uot-

This is the final trial of the programme. This time the entire programme in its final form is administered to a large group of 45 students of M.Ed. class from the college of Education, Ambala City.

While administering the programme in actual class room situation, the title of the programme was announced and specific written instructions were read out before the students started working on the programme. The investigator in face to face situation conducted first the tryout of the programme with 106 frames and then criterion test was given to the same group of 45 students in order to collect data and do analysis of these

data to make proper evaluation of the programme on the philosophy of Buddhism.

Programme Density

The term Programme Density has been defined by E.J.Green¹ as type/token ratio

$$\text{Programme Density} = \frac{\text{Number of Different Responses on a section of the Programme}}{\text{Total number of Responses required for that section}}$$

Review of Related Literature

Review of related literature is an integral part of the investigation as effective research is based on past knowledge. Review of related literature helps to eliminate the duplication of what has been done and provides useful hypotheses and helpful suggestions for significant investigations. Citing studies that show substantial agreement and those that seem to present conflicting conclusions helps to sharpen and define understanding of existing knowledge in the problem area, provides back ground for the research project, and makes the reader aware of the status of the issue.

Review of related literature helps the researcher not only in providing information available in the field of research but in suggesting the methods to be adopted, avoiding mistakes done by others and in locating misconceptions in the early discoveries by others. Considering all these importance of the review of related literature the investigator has some information about studies already conducted in abroad as well as in India.

DEVELOPMENT OF THE STUDY

There are some specific steps which are followed in development of a programme. Which involves

1. Plan and Preparation
2. Programme writing
3. Development of a Criterion test.

Plan and Preparation

The preparatory stage the researcher has covered the following steps

1. Selection of the Topic,
2. Writing Assumption about the learner,
3. Content Analysis,
4. Defining Behavioural objectives

Programme Writing

The writing phase includes

- a. Introductory frames
- b. Teaching frames
- c. Practice frames
- d. Testing frames

While writing the programme, irrelevancies concerning the subject matter were cleared away so that the students could clearly concentrate on the focal informative stimuli essential to the attainment of terminal behavior set forth in the behavioral objectives.

Criterion Test Construction

A good criterion test should be

- A representative of all the sub units and sections in the programme.
- It includes the test item covering almost all the objectives stated in behavioral terms.
- Valid so that it truly measures what it wants to measure.

Criterion test is usually administered at the completion of the programme. This test assess the behaviour by the programmer. A criterion test is said to be valid when it truly measures what it wants to measure. A Criterion test is the representative of all the behavioural objectives set forth.

In the criterion test prepared for the investigation 28 items were constructed. It includes the items covering all the objectives stated in behavioural terms.

Try Out And Evaluation

Try out Stage : Try out stage has following step:

- Step 1:* Individual Try Out
- Step 2:* Large group Try out

The Programme was first tried on an individual student then the final large group situations on 45 students of M.Ed. Class of the College of education, Ambala City. After the individual and then a large group Try out a criterion test was administered on students.

So Try out tests not only revealed the efficiency of the programme, but also helped the researcher in modifying the programme.

Empirical Validation of the Programme

The data so obtained were empirically validated to find out

1. Programme Density
2. Error Rate
3. Sequence Progression

Programme Density

The term Programme Density has been defined by E.J.Green as type/token ratio

$$\text{Programme Density} = \frac{\text{Number of Different Responses on a section of the Programme}}{\text{Total number of Responses required for that section}}$$

There are two types of Programme density

1. Independent Programme Density
2. Cumulative Programme Density.

The independent density of the whole Programme ranges between 0.6666 and 1.0000.

The cumulative density of the whole programme ranges between 0.6984 and 1.0000

Error Rate

In Linear Programming when the learner gives a wrong response in accordance with the stipulation of the programme, it is considered as an error. Formula for computing the Error Rate may be stated as follows:

$$\text{Error Rate (\%)} = \frac{\text{Total No. of Errors X 100}}{\text{Total No. of Responses X Number of Students}}$$

The Error rate on every independent Tape and Error rate on a programme as a single Tape has been Calculated.

The Error rate of the programme found to be ranges between 0.0000 and 3.1746.

Criterion Test Findings

When the criterion test for this topic was constructed, it consisted of 28 questions and it was administered on 45 students of M.Ed. Class after they had completed the programme. The Criterion test findings are as follows:

In the Criterion test

Total number of errors committed by the students (NE) = 33
 Total number of responses needed in the programme (NR) =28
 Total number of students appearing in the programme = 45

$$\begin{aligned} \text{Error rate (\%)} &= \frac{33 \times 100}{28 \times 45} \\ &= 2.62 \% \end{aligned}$$

The percentage of success is 97.38 %

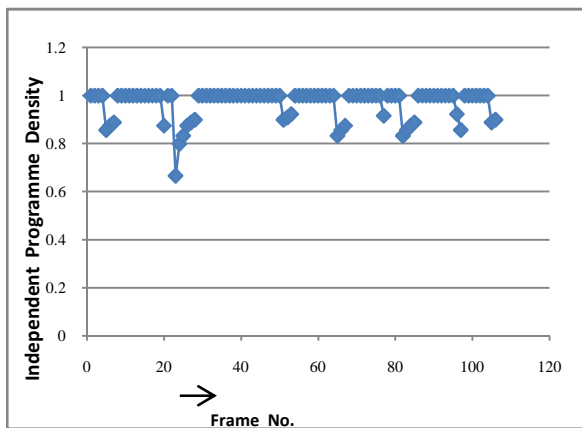


Fig. 1 Independent programme density on frames of the linear programme on philosophy for the students of m.ed. Class

Interpretation of Results

The percentage of success obtained by the students on the criterion test comes out to be 97.38 %,which implies that the students were able to grasp 97.38 % of the content in the programme. The independent density has also been plotted in Figure -1 for frames and tapes. It is clear from the figure that independent densities range between 0.8571 (Frame Number 5) and 1.0000 (on first four frames). From Frames 5 onwards there is repetition of the instructional material.

The cumulative density along the linear programme with 106 frames in the beginning shows downward trend with variations. From frames 5 to 11 it has increasing trend. At frame 12 the cumulative density is 0.8666. It increases again from 0.8666 to 0.90000 within the portion from frames 12 to 17. From frames 18 to 21 it decreases from 0.8636 to 0.8076. On frame 22 it slightly increases and then decreases up to frame 24. After it the curve shows some increasing trend from frames 24 to 43 with small variations. Then cumulative programme density displays constancy (with slight fluctuations between frames 50 and 75). After that it shows a slight downward trend. The smoothed values of cumulative programme density (Figure -1 and 2) reflect downward trend in the beginning and then after rising and coming down and attaining some constancy and then slow decreasing trend.

Table 1 Smoothed Cumulative Programme Density (SCPD)

Frame No.	SCPD	Frame No.	SCPD	Frame No.	SCPD
1	—	37	0.7792	73	0.7499
2	1.0000	38	0.7785	74	0.7536
3	1.0000	39	0.7793	75	0.7572
4	0.9523	40	0.7783	76	0.7581
5	0.9107	41	0.7855	77	0.7544
6	0.8736	42	0.7909	78	0.7517
7	0.9212	43	0.7901	79	0.7516
8	0.8992	44	0.7819	80	0.7516
9	0.9085	45	0.7751	81	0.7475
10	0.9162	46	0.7687	82	0.7433
11	0.9020	47	0.7683	83	0.7392
12	0.8882	48	0.7678	84	0.7352
13	0.8746	49	0.7675	85	0.7281
14	0.8820	50	0.7672	86	0.7243
15	0.8886	51	0.7604	87	0.7237
16	0.8945	52	0.7552	88	0.7263
17	0.8861	53	0.7450	89	0.7289
18	0.8777	54	0.7401	90	0.7322
19	0.8577	55	0.7402	91	0.7324
20	0.8390	56	0.7451	92	0.7276
21	0.8208	57	0.7499	93	0.7219
22	0.8027	58	0.7533	94	0.7192
23	0.7890	59	0.7567	95	0.7188
24	0.7754	60	0.7555	96	0.7155
25	0.7761	61	0.7544	97	0.7122
26	0.7755	62	0.7532	98	0.7090
27	0.7746	63	0.7563	99	0.7094
28	0.7620	64	0.7552	100	0.7071
29	0.7593	65	0.7500	101	0.7076
30	0.7566	66	0.7408	102	0.7046
31	0.7649	67	0.7357	103	0.7043
32	0.7728	68	0.7348	104	0.7013
33	0.7803	69	0.7380	105	0.7010
34	0.7855	70	0.7410	106	—
35	0.7830	71	0.7441		
36	0.7803	72	0.7470		

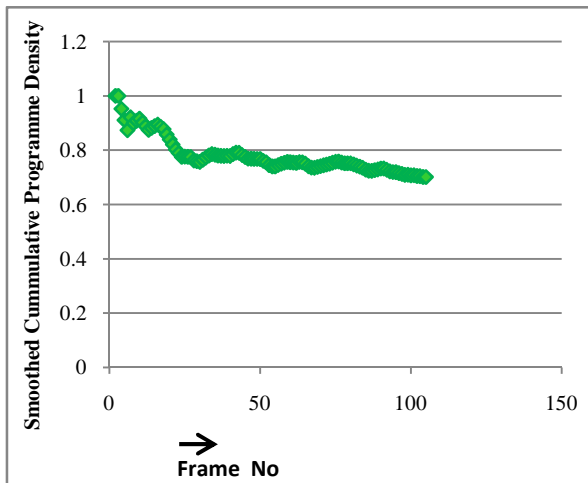


Fig2 smoothed cumulative programme density along the linear programme on ancient philosophy for the students of m.ed. Class

Summary Of The Study

The linear programme developed by the investigator programmer on the educational philosophy of ancient era covers the entire syllabus of the topic chosen from the compulsory paper "Philosophical and Sociological basis of Education.

The subject matter of the topic has been broken into 106 small frames.

It has been found on the basis of two tryouts that the programme is quite effective in making the students of M.Ed. class learn the subject matter and the students remain active throughout the learning period.

The rate of success on the criterion test has also been very high as more than 95% students of M.Ed. could achieve success on more than 95% of the subject matter. On the whole the programme works well. The empirically validated linear programme can be effectively used for M.Ed. class students for the learning of the educational philosophy of ancient era.

Educational Implications And Conclusion

The Linear Programme on the educational Philosophy of ancient era developed and empirically validated (evaluated) by the investigator Programmer has been an effective instrument for making the students of M.Ed. learn this philosophy. From educational view point the topic of research selected by the investigator is very useful as it is related to educational technology which is one of the emerging areas of education. The students of M.Ed. will be benefited with this programme developed exclusively for them for the learning of an important topic of educational technology. The learning through the programme is based on the principle of operant conditioning which suggests that the students be given opportunity to learn the subject matter through their own efforts. Immediate feedback to know about how the students responded as they made endeavour to construct the responses to the subject matter in frames. So the students through their performance proceed further actively and effectively.

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