

AN EXPERIMENTAL STUDY ON THE EFFECTIVENESS OF EDUCATIONAL TELEVISION PROGRAMMES

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The paper presents findings of an experimental study on the effectiveness of ETV programmes as against conventional teaching of certain engineering subjects. The results showed no significant difference in either achievement of students in learning or in their attitude towards the two methods of teaching - learning used. On the basis of experimental study, suggestions have been made for effective ETV course material development and their use.

1. INTRODUCTION :

Use of Electronic Media in teaching and learning is increasingly being seen in India both in Institution based programmes as also in distance learning programmes. In technical education, in the recent past, television programmes have been telecast for training of polytechnic teachers in an emerging area of technology. Lecture based T.V. programmes are also being prepared and disseminated by resource institutes like IITs and TITs. Some other organisations and commercial agencies like 'Marg Darshan' also prepare and sell educational T.V. programmes. No specific study has been reported so far on the effectiveness of such ETV programmes in Indian context. In view of large sum of money being invested in creating infrastructure and production

of ETV programmes and their use, it is necessary to study the effectiveness of such programmes in terms of students achievement as also other related factors like motivation, type and nature of programmes to be produced and the strategy of their development, and the nature of other support learning material required.

2. OBJECTIVES :

The objectives of the research study were :

- (i) To develop lecture based video films and related self learning materials,
- (ii) To compare the effects of methods of instruction (viz lecture followed by study of text book, and use of lecture based video film coupled with self learning module) on the achievement of students of electri-

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- cal engineering,
- (iii) To compare the attitude of students instructed through different methods of instruction as mentioned in (ii) above

3. HYPOTHESIS :

- Student taught through lecture-based video film coupled with self learning modules will significantly achieve higher scores than the students taught through lecture method.
- There will be significant difference in the attitude among students instructed through lecture method, and lecture based video film coupled with self learning modules.

4. SAMPLE :

A sample of 30 students studying in fifth semester electrical engineering diploma course was purposively selected from a polytechnic of Haryana. The sample was randomly divided into two groups viz experimental group and control group. The experiment was repeated with another 38 student of 4th semester Electronics and Communication Engineering in Women's polytechnic Chandigarh dividing them randomly into experimental group and control group.

5. DEVELOPMENT OF INSTRUCTIONAL MATERIAL AND TOOLS :

Instructional Materials for two set of topics for two subjects of Electrical Engineering viz "Electrical Design Estimating and Costing" and "Electrical Machines" were developed through the following steps :

- Breaking the topics into lessons;

- Identifying objectives of each lesson;
- Preparing self learning module for each lesson;
- Preparing video film in each lesson with the help of selected subject matter experts;
- Designing questionnaire to receive response of students on certain aspects of teaching - learning;
- Observation points during the experiments;
- Achievement test developed by the investigator

CHARACTERISTICS OF THE TEACHING - LEARNING MATERIAL USED :

The teaching-learning material used in the experiment viz the video programmes and the related self learning modules were developed using the principles of learning and their review and testing through a representative client group. Following are the salient characteristics of the material developed :

Video-films :

- Video films were lecture based and recorded in actual class room situation;
- Stress was on audio-visual presentation;
- Use was made of live demonstration;
- Industrial applications were recorded and used;
- Use of computer graphics to illustrate varying quantities was made;
- Adequate time was kept for questions and answers (some questions were also raised by the teacher and these were discussed).

Self-learning Modules :

- The topics were broken into learning objectives;
- Plenty of illustrations along with explanation were used;
- Principles of 'known to unknown' and 'simple to complex' were followed;
- Student activity in the form of completion type exercises were included;
- Unit test and feedback formed an integral part of the module;
- Summary at the end of module gave the salient learning points.

6. DESIGN OF THE STUDY :

In this study, the pre-test - post-test experimental designs was followed. The independent variable in the study included methods of instruction (viz traditional lecture method followed study of prescribed text book, and use of lecture based video films coupled with self-learning modules); and the dependent variables were achievement of students, and attitudes of students towards methods of instruction.

7. PROCEDURE :

The present study was conducted in three phases. In the first phase, achievement test as pre-test was administered to both the experimental and control groups. In the second phase, first group was trained through video films coupled with self learning modules.

While the control group was taught by the teacher supplemented by study of text book by the student. Teaching sessions were engaged on three days. In the final phase, both the groups were administered achievement test as post-test. Feedback from students were collected through the questionnaire. The experiment was conducted separately in two polytechnics viz one boys polytechnic and one women's polytechnic.

8. STATISTICAL TECHNIQUES USED :

Mean, Median, Standard Deviation were computed to study the nature of the data, t-test was employed to test the null hypotheses.

Frequency response of the items of the questionnaire was noted for arriving at conclusions.

9. FINDING OF THE STUDY :

The results of experiment in boys polytechnic at Narnaul, Haryana are given in Table I.

From the Table I, it is observed that the t-value of the pre-test scores of the two groups is statistically significant. It shows that the initial behaviour of the two groups was not identical. Thus, t-value was calculated on the gain scores of the two groups. Table I indicates the t-value of gain scores of the two groups as statistically not significant. It shows that both the groups achieved almost equal scores as far as gain in their achievement was concerned.

(See table on next page)

Table I : Significance of difference between means (Experiment with student of polytechnic at Narnaul, Haryana)

Group		N	Mean	SD	t-value
Experimental group	on pre-test scores	15	14.86	10.53	3.68*
Control group		15	19.73	16.08	
Experimental group	on gain scores	15	22.67	11.08	0.49
Control group		15	23.73	15.08	

* Stands for Significant at 0.01 level

N Stands for number of student in a group

Sd Stands for standard Deviation

t-value Stands for Significance of difference between Means of two groups

The results of the experiment in Women's Polytechnic Chandigarh are given in Table II.

Table II : Significance of difference between means (Experiment with student of women's polytechnic, Chandigarh)

Group		N	Mean	SD	t-value
Experimental group	on pre-test scores	19	14.07	3.9	3.93*
Control group		19	10.26	2.8	
Experimental group	on gain scores	19	20.02	5.8	0.68
Control group		19	21.08	8.3	

As the t-value of the pre-test score of the two groups was statistically significant, t-value was calculated on gain scores and found to be statistically not significant meaning that both the groups achieved almost equally well in their achievement in learning.

To study the attitude of students of the two groups, the feedback questionnaire was used which included items like interest in learning, freedom to learn

at own speed, effect on motivation due to physical presence or absence of teacher, clarifying, preference of choice of a particular method of teaching - learning etc.

Frequency response analysis of the items in the questionnaire showed no significant difference in the attitude of the students in learning from their teachers or through video films.

The institutes, however, need to

create and maintain Learning Resource Centres (LRCs) annexed preferably to the library where facilities would exist for viewing of video films by a class and space and atmosphere for independent learning by the student.

10. CONCLUSION :

- (i) On the basis of the experiment conducted with students it has become possible to identify the characteristics of the teaching-learning material to be developed for self learning.
- (ii) The results of the two experiments have shown that there was no significant difference between the achievement of students taught either with lecture based video films coupled with self learning materials.
- (iii) It has also been established that there was no significant difference in the attitude of the students in learning through either of the two methods as mentioned in (ii) above.

Educational material in the form of lecture based video programmes and related self learning reading material can serve as either alternative or supplementary material to direct teaching. Such programmes if prepared for the whole subject would help solve some of the educational problems like shortage of teachers particularly in emerging areas of technology, remedial study material for students.

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