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Research Paper

Effectiveness Of Module In Terms Of Achievement And Reaction For Teaching Educational Technology At B.ed Level

Kamakshi Agnihotri
Reader , School Of Education , D.A.V.V. Indore.

ABSTRACT

The present study is an attempt to study the effectiveness of Module and its comparison with traditional method in terms of achievement and reactions. The study was conducted on B.Ed. trainees and Educational technology was the subject on which the module was developed. The study reveal that the module was found to be effective in terms of both achievement and reactions.

Keywords: Effectiveness Of Module , Achievement , Teaching Educational Technology .

1.1.0 INTRODUCTION

The modern trend emphasizes much on individualized instruction and production of structured material. I also require the study of the effectiveness of materials with regards to students' characteristics. Looking to the importance of these trends present study has been undertaken. Present study entitled, "Development of Module on Educational Technology, its Effectiveness and Traditional Method in Terms of Scholastic Achievement at B.Ed. level" belongs to the area of educational technology especially the production of instructional material. It deals with the two aspects:

- ▲ Production of Research based module
- ▲ Effectiveness of module with regards to intelligence, self-concept, personality, level of aspiration, teaching attitude, self confidence, achievement and reaction towards the module.

In the present study the terms Module and Traditional method are described as follows:

Module: Module refers to a self sufficient and self contained instructional material which provides individualized instruction to the learners.

Traditional Approach: It refers to the existing teacher dominating classrooms instruction where learners are less active or passive. Most of the teaching is through lecture only.

1.2.0. STATEMENT OF THE PROBLEM

The problem of the present study has been stated as follows-

"Development of Module on Educational Technology, its Effectiveness and Comparison with traditional method in terms of scholastic achievement at B.Ed. level"

1.3.0. OBJECTIVES

- 1.To compare the adjusted mean overall achievement scores of the students studying through the module with those

studying through the traditional method when self-concept was taken as covariate.

- 2.To compare the adjusted mean overall achievement scores of the students studying through the module with those studying through the traditional method when level of aspiration was taken as covariate.

- 3.To compare the adjusted mean overall achievement scores of the students studying through the module with those studying through the traditional method when intelligence was taken as covariate.

- 4.To compare first and second mean reaction scores of the students towards the module.

1.4.0. HYPOTHESES

The following hypotheses were framed:

- 1.There will be no significant difference between the adjusted mean overall achievement scores of the students studying through the module and studying through the traditional method when self concept was taken ad covariant.
- 2.There will be no significant difference between the adjusted mean overall achievement scores of the students studying through the module and studying through the traditional method when level of aspiration was taken ad covariant.
- 3.There will be no significant difference between the adjusted mean overall achievement scores of the students studying through the module and studying through the traditional method when intelligence was taken ad covariant.
- 4.There will be no significant difference between the first and second mean reaction scores of the students towards the module.

1.5.0.METHODOLOGY

The methodology of the present study given under different heads:

Sample: The present study was experimental in nature. It was conducted at two stages-

- 1.Pilot Study

2.Final study

The pilot study was also done at two levels- initial tryout and small group tryout. 15 Students of summer B.Ed. and 15 Students of regular B.Ed. constituted the initial and small group tryouts sample respectively. For the final study 60 students out of which 30 students were included in experimental group and 30 in control group.

Design: The present study was experimental in nature. The post-test only control design was used for the present study. There were two groups- Experimental and Control groups. The students of the experimental group were taught through the developed module while the students of the control group through traditional method. Dependent variables of the study were- achievement and reactions. Self-Concept, level of aspiration and intelligence were taken as covariates.

Tools: In the present study, the effectiveness of the module was studied in terms of achievement and reaction of the student. The following tools were used in the study-

- 1.Criterion test
- 2.Reaction Scale
- 3.Self Concept Scale developed by Pratibha Dev.
- 4.Intelligence Test developed by RK Tondon.
- 5.Test of level of aspiration developed by Singh and Tiwari.

Procedure of Data Collection: There were two groups experimental and control. First of all, the orientation regarding experiment and learning through module was given to the students of the experimental group and also to the control group. The students of the experimental group were taught through the developed module while the students of the control group through traditional method. All the five units of the course of educational technology were taught through module to the experimental group and by the investigator to the control group. During the experimentation, various standardized tests related to the self concept, level of aspiration and intelligence course. At the end of the experiment the reaction scale was administered on the experimental basis.

1.6.0.ANALYSIS AND INTERPRETATION OF DATA

The analysis and interpretation of data is as follows:

1.The first objective of the study was to study the effectiveness of module in terms of achievement and reactions. The results are given under different heads:

Effectiveness of Module in terms of achievement

The effectiveness of the module was of module was studied in terms of achievement on six criterion tests. The data were analysed by calculating percentiles of each criterion test for both the groups. Overall achievement was taken by calculating mean of all six criterion test scores. The results are presented in Table 1.1.

Table 1.1
Percentiles of students studying through module on Six Criterion Tests
(Results are in Percentage)

Percentile	CRT I	CRT II	CRT III	CRT IV	CRT V	CRT VI	OVERALL
P90	81.66	83.00	82.00	82.72	96.88	96.34	81.67
P80	72.32	69.00	74.50	78.72	93.76	91.66	75.80
P75	67.66	64.32	71.00	76.74	92.22	89.34	73.00
P70	63.00	60.42	69.24	74.70	90.66	87.00	70.64
P60	53.86	56.42	65.74	70.74	88.16	82.34	68.08
P50	46.00	52.42	62.24	67.24	85.84	78.14	65.54
P40	40.00	47.40	58.00	63.74	83.50	74.14	63.00
P30	35.56	41.80	53.34	58.00	81.16	69.81	59.80
P25	34.74	39.34	51.00	51.00	80.00	67.00	57.00
P20	33.00	37.00	44.00	48.66	77.20	64.20	54.20
P10	27.00	32.34	27.00	44.00	71.60	57.00	47.00

Table 1.2
Percentiles of students studying through traditional method on Six Criterion Tests
(Results are in Percentage)

Percentile	CRT I	CRT II	CRT III	CRT IV	CRT V	CRT VI	OVERALL
P90	62.00	76.00	72.34	65.00	96.50	82.00	73.66
P80	54.50	62.00	67.66	57.00	93.00	77.34	67.80
P75	51.00	59.66	64.50	53.00	91.24	75.00	65.00
P70	49.00	57.34	61.00	50.20	89.60	73.72	62.56
P60	45.00	52.60	54.00	44.60	86.80	71.18	59.44
P50	37.00	47.00	47.00	39.56	84.00	68.64	56.34
P40	31.66	41.40	41.40	35.56	81.20	66.08	53.22
P30	28.00	35.80	36.34	31.56	78.00	61.00	49.74
P25	26.56	33.00	34.78	29.00	76.24	57.50	48.00
P20	25.00	31.00	33.22	26.20	74.50	53.66	46.24
P10	21.88	27.00	30.10	20.34	71.00	44.00	42.34

Looking at the table 1.1 the overall achievement of the students studying through module reflect that 50% students got more than 60% marks and 20% achieved distinction marks which indicates the effectiveness of Module with regard to achievement of students of traditional method.

Results obtained on different criterion tests reflects that on criterion test I 30% students achieved more than 60% marks through modular approach and only 10% secured distinction on it. But on criterion test II 30% students studying through module achieved 60% and 10% were above distinction marks. On criterion test III 50% students achieved 50% marks through modular approach and only 10% secured distinction on it. The result on criterion test IV indicates that 60% students achieved 60% marks through modular approach and 25% secured distinction on it. The obtained result on criterion test V indicates that 90% students achieved more than 70% marks through modular approach and 80% secured distinction on it. The result on criterion test VI indicates that 80% students achieved more than 60% marks through modular approach and 50% secured distinction on it. On the other hand 70% students achieved 60% marks and 20% were above distinction marks studying through module. In this may be interpreted that the module was found to be effective in terms of achievement of the students of experimental group. The students studying through traditional method have not shown this level of achievement (vide table 1.2).

Effectiveness of Module in terms of reactions

Effectiveness of the module was studied in terms of the reactions of the experimental group about the treatment covering aspects like-content, examples exercises, language, conceptual clarification, questions, references and characteristics of the module.

Table 1.3
Reaction towards the module

S.No.	Item	S.A.	A.	UN.	D.A.	SDA
1	Organization of content is proper	13(46.43)	15(53.57)	-	-	-
2	Objectives given in the beginning of the module make learning easy	14(50)	14(50)	-	-	-
3	Examples are related to daily life	9(32.14)	19(67.86)	-	-	-
4	There is need to change the sequence	2(7.14)	7(25)	4(14.29)	8(28.58)	7(25)
5	No of examples are not appropriate	-	5(17.86)	2(7.14)	12(42.86)	9(32.14)
6	Exercise questions are related to the content	19(67.86)	8(28.57)	1(3.57)	-	-
7	Module motivates for thinking	10(35.72)	14(50)	2(7.14)	2(7.14)	-
8	Module facilitates self learning	16(57.14)	12(42.86)	-	-	-
9	Distribution of content is logical	10(35.72)	16(57.14)	1(3.57)	-	-
10	Examples are helpful in understanding the content	10(35.72)	17(60.71)	1(3.57)	-	-
11	Language of the module is easy	18(64.29)	7(25)	2(7.14)	1(3.57)	-
12	Some learning through module seems to be boring	10(35.72)	10(35.72)	1(3.57)	5(17.86)	2(7.14)
13	Content presentation in module is according to the level of learners	9(32.12)	17(60.71)	2(7.14)	-	-
14	References given in module are helpful in providing guidelines to the learners	10(35.72)	15(53.57)	3(10.71)	-	-
15	Content is understandable	13(46.43)	15(53.57)	-	-	-
16	Solutions given for interactive questions are inappropriate	2(7.14)	-	2(7.14)	14(50)	10(35.72)
17	Module develops tendency of cramming	6(21.43)	6(21.43)	3(10.71)	10(35.72)	3(10.71)
18	Module is time consuming	14(50)	12(42.86)	1(3.57)	1(3.57)	-
19	Through module only few students become active	1(3.57)	11(39.29)	6(21.43)	7(25)	3(10.71)
20	Latest knowledge is available in the module	16(57.14)	10(35.72)	3(10.71)	-	-

Looking at the table 1.3 it is evident that students studying through module reacted favorably towards each and every aspect of the module. 82-100% students were in the favor that content presented through the module was understandable and according to the level of the learner. Module has latest information related to the content and its organization was proper. The objectives presented in the module were clear and made learning easy was favored by 100% students. 64.29% of students were strongly agreed towards the language aspect of the module while 25% students were agreed that the language was easy and understandable. Almost 100% students were in the favor that the examples given in the module were from daily life. 67.86% students strongly agree that the questions were related to the content covered in the module. 89.28% favored that references given in the module helped them very much. 100% students were in the favor that the module motivated deep thinking in the students. 92.86% students reacted favorably that the solutions given for interactive questions were easy. 100 students agreed that module motivates self learning. Thus it may be concluded that students showed favorable reactions towards almost every aspect of module.

Comparison of Module and Traditional Method in terms of achievement when self concept was taken as covariate

The second objective of the study was to compare the adjusted mean overall achievement scores of the students studying through the module with those studying through the traditional method when self concept was taken as covariate. The data were analyzed by using analysis of covariance. The results are given in table 1.4

Table 1.4
Summary of ANCOVA for overall achievement by taking self concept as covariate

Source of Variance	DF	SS	MSS	F-Value
Among	1	158.55	158.55	4.03*
Within	53	2082.38	39.29	
Total	54			

*significant at 0.05 level

Table 1.5
Adjusted mean overall achievement score of experiment and control group

Group	N	Mx	My	My.x
Experimental	28	134.25	32.50	32.19
Control	28	125.78	28.47	28.77

From the table 1.4 it can be seen that the F-value is 4.03 which is significant at 0.05 level with df 1/53. It indicates that the adjusted overall mean achievement score of the students studying through the module differ significantly from those studying through the traditional method when self concept was taken as covariate. Thus the null hypothesis that there will be no significant difference between the adjusted mean overall achievement scores of the students studying through the module and studying through the traditional method when self concept was taken as covariate is rejected. The overall mean achievement of the experimental group was significantly higher than the control group (vide table 1.4)

Comparison of Module and Traditional Method in terms of achievement when level of aspiration was taken as covariate

The third objective of the study was to compare the adjusted mean overall achievement scores of the students studying through the module with those studying through the traditional method when level of aspiration was taken as covariate. The data were analyzed by using analysis of covariance. The results are given in table 1.6.

Table 1.6
Summary of ANCOVA for overall achievement by taking level of aspiration as covariate

Source of Variance	DF	SS	MSS	F-Value
Among	1	237.68	237.68	5.62*
Within	53	2240.17	42.26	
Total	54			

*significant at 0.05 level

Table 1.7
Adjusted mean overall achievement score of experiment and control group

Group	N	Mx	My	My.x
Experimental	28	2.77	32.50	32.55
Control	28	2.51	28.47	28.41

From the table 1.6 it can be seen that the F-value is 5.62 which is significant at 0.05 level with df 1/53. It indicates that the adjusted overall mean achievement score of the students studying through the module differ significantly from those studying through the traditional method when level of aspiration was taken as covariate. Thus the null hypothesis that there will be no significant difference between the adjusted mean overall achievement scores of the students studying through the module and studying through

the traditional method when level of aspiration was taken ad covariate is rejected. The overall mean achievement of the experimental group was significantly higher than the control group (vide table 1.6)

Comparison of Module and Traditional Method in terms of achievement when intelligence was taken as covariate

The third objective of the study was to compare the adjusted mean overall achievement scores of the students studying through the module with those studying through the traditional method when intelligence was taken as covariate. The data were analyzed by using analysis of covariance. The results are given in table 1.7.

Table 1.8
Summary of ANCOVA for overall achievement by taking intelligence as covariate

Source of Variance	DF	SS	MSS	F-Value
Among	1	190.34	190.34	5.67*
Within	53	1778.24	33.55	
Total	54			

*significant at 0.05 level

Table 1.9
Adjusted mean overall achievement score of experiment and control group

Group	N	Mx	My	My.x.
Experimental	28	39.89	32.50	32.40
Control	28	39.32	28.47	28.71

From the table 1.6 it can be seen that the F-value is 5.67 which is significant at 0.05 level with df 1/53. It indicates that the adjusted overall mean achievement score of the students studying through the module differ significantly from those studying through the traditional method when level of aspiration was taken as covariate. Thus the null hypothesis that there will be no significant difference between the adjusted mean overall achievement scores of the students studying through the module and studying through the traditional method when level of aspiration was taken ad covariate is rejected. The overall mean achievement of the experimental group was significantly higher than the control group (vide table 1.8)

1.7.0.IMPLICATIONS

The study has wide implications for persons working in the field of Education. It provides guidelines to textbook writers, students, curriculum constructors, teacher educators and researchers.

Textbook writers

The study has wide implications for textbook writers as the study provides guidelines for them to incorporate the various facilities like-interaction question, glossary, references, summary, exercises and glossary etc.

Society

Society is ever changing and to fulfill the dynamic demands of the society it is necessary that the resources should be of such nature that it can provide the base for new and updated knowledge.

Teachers

Teachers are that section of the society which trains the future children. The teachers should be trained in the new pedagogy and methodology of teaching. There is also a need

to acquaint teachers with the innovations of Education.

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