



Development and Tryout of Self Learning Material in Subject Environmental Education on the Unit of Bio-diversity for B.Ed. Trainees

Kinnary Bharat Patel

*I/c. Principal,
B.J. Patel College of Education,
Bardoli, Affiliated with Veer Narmad South Gujarat University,
Surat-395007, Gujarat, INDIA.*

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ABSTRACT

This is the time when healthy environment for learning should be created for the B.Ed. trainees. And this will motivate them for learning the new topics themselves by maximum practice. It can also create an urge in the learners for gaining further knowledge. This is the proper age for them to learn by themselves through Self-Learning Material. Looking at the advantages of Self-Learning Materials, the researcher was tempted to create Self-Learning Materials, on the topic of 'Bio-diversity' for B.Ed. trainees. Self-learning materials with its uniqueness of giving motivation, information, self practice through illustration, makes learning more interesting and encouraging for the trainees. So researcher has taken interest in this field and prepared self-learning material for B.Ed. trainees on one unit. Researcher has selected two groups from B.Ed. class. In order to study the effectiveness of the developed self-learning material the pre-test post-test control group design was employed. Statistical analysis of the collected data was done using t-test. The experimental group who learnt through self-learning material gained significantly higher scores than the scores of the trainees who were taught through traditional teaching method. This research is an attempt to show that self-learning material can be effectively used for teaching at higher education level.

Introduction

Self-Learning Materials are one kind of Programmed Learning Materials or Self-Study Materials that can be given to practice in various skills like reading, writing, observing, understanding, speaking etc. in all the stages of the teaching-learning sequence (Motivation, Statement of Aim, Presentation, Production, Reproduction and Evaluation) and for understanding many situations and types of communications.

Self-Learning Materials as a teaching technique is appropriate for all the levels of education and has shown itself to be remarkably adaptable to different circumstances whether used as a method of presenting a lesson simultaneously in a class or in small teams of learners of mixed ability as individual or supervised works as private study.

Besides, Self-Learning Materials provides the learner with the added advantages of being self-paced and even helps the slow learners with the mastery of skills. Use of Self-Learning Materials requires active participation of the learner in the learning situation, an additional advantage that makes Self-Learning Materials relevant in the present study.

Objectives of the Study

The present research was carried out with the following main objectives:

1. To develop self learning material on the unit “Bio-diversity” in the subject of Environmental Education for B.Ed. trainees studying in Veer Narmad South Gujarat University, Surat.
2. To study how far the self learning material helps the trainees to understand the unit of “Bio-diversity”.
3. To study the relative effectiveness of teaching “Bio-diversity” in terms of two methods of teaching i.e. conventional method of instruction and self learning material for the trainees of Traditional group & Experimental Group.
4. To study the relative effectiveness of self learning material with reference to sex of the trainees in Experimental Group.

Hypotheses of the Study

The present research was of experimental type and so the researcher had formed the following null hypotheses

1. There will be no significant difference between the mean scores of pre-test & post-test of the trainees of Experimental Group.
2. There will be no significant difference between the mean pre-test scores of the trainees of Traditional Group & Experimental Group.
3. There will be no significant difference between the mean gain scores obtained on the basis of pre-test and post-test by the trainees of Traditional Group & Experimental Group.

4. There will be no significant difference between the mean pre-test scores of boys and girls of Experimental Group.
5. There will be no significant difference between the mean gain scores of boys and girls of Experimental Group.

Rationale of the Study

Self-Learning Material as a printed booklet form is one of the devices of the technology, which has great importance in the field of education. And with its uniqueness of giving motivation, information, self practice through illustration, it makes teaching and learning more interesting and encouraging for the students. In the present time number of students in classroom is increasing very fast and becoming overcrowded. The over crowdedness of the class has changed the teachers and pupil ratio. It has made the condition of classroom worse. Even it has made it difficult for the teachers to give proper attention to the students and this problem of overcrowded classroom of the present time might be solved with the help of Self-Learning Materials. Self-Learning Material can be more advantageous to both students and teachers. It can also allow the teachers to give attention to an individual student, as he / she is just a facilitator. It can also satisfy the need of the students' imagination as they can modify the presented content according to their imagination. Without self-effort it is difficult to learn at higher level therefore it can be said that Self-Learning Materials are essential at higher level of Education. In the present era learner centered approach is effective.

In the above context, the researcher felt that it was necessary to develop Self-Learning Materials on Bio-diversity to improve the learning skills of B.Ed. trainees.

The researcher observed that the studies related to the development of Self-Learning Material or Programmed Learning Material for teaching of any subject shows that these strategies have proved effective as they were based on the needs of the learners. The researcher, from the review of related literature, did not come across any study conducted for teaching topic of Environment Education to B.Ed. trainees and therefore the present study has been undertaken by the researcher.

Population and Sample

The present research was meant for the teacher trainees studying in B.Ed. colleges of Veer Narmad South Gujarat University, Surat. Therefore, for the present research, the

population was all the teacher trainees studying in B.Ed. colleges of Veer Narmad South Gujarat University, Surat.

The main purpose of the research was to check the effectiveness of self-learning materials in Environmental Education and to study how far this material helps the teacher trainees to learn themselves. The researcher used purposive sampling technique for selecting the city and the college. For it the researcher selected the college : B. J. Patel College of Education, Bardoli. These colleges were selected with purpose of getting all the required facilities and the researcher's convenience for the study. Two groups, each of 42 trainees were formed. Thus, total 84 trainees were selected from the college. Two groups were equated on the basis of mark obtained in Environmental Education in semester - 1.

Tools of the Study

The tools used during the research for collecting the necessary data are as follows :

1. Self-learning material
2. Pre and Post test

Research Design

The present study was developmental cum experimental in nature and consisted of two parts. The first part consisted of development of the self-learning material on one unit 'Bio-diversity' of Environmental Education. The second part of the study was concerned with measuring the effectiveness of the developed self-learning material. In order to study the effectiveness of the developed self-learning material the pre-test post-test control group design was employed.

Statistical Techniques Used for Data Processing

The mean gain scores were analyzed and interpreted by applying the statistical 't' test. The effectiveness of self-learning material was measured using 't' test for co-related means. The comparative effectiveness of the experimental group and traditional group was measured using 't' test for uncorrelated means.

Analysis of the Data

Table 4.1**Comparison of the mean pre-test & the post-test scores of Experimental Group**

Statistics	Pre-test	Post-test	t-value
Number of trainees	42	42	90.66*
Mean	4.405	32.238	
Standard Deviation	1.697	2.903	
Correlation (r)	0.747		
Standard error of mean	0.307		

* Significant at 0.01 level.

The obtained 't'-value for the Experimental group was 90.66 which was more than 0.05 level value 1.96 and 0.01 level value 2.58 with $df = 60$. Thus, there was a statistically significant difference between the mean scores of the pre-test and the post-test.

Table 4.2

**Comparison of the mean pre-test scores of Experimental Group
& Traditional Group**

Statistics	Experimental Group	Traditional Group	t-value
Number of trainees	42	42	0.544**
Mean	4.405	4.214	
Standard Deviation	1.697	1.522	
Standard Error of Mean	0.351		

** Not significant at both the levels.

The obtained 't'-value was 0.544 which is not significant at 0.05 level & 0.01 level. There is no significant difference between the mean scores of the pre-tests of both the groups. Hence, it can be concluded that both the groups were equal before treatment.

Table 4.3

Comparison of mean gain scores of Experimental Group & Traditional Group

Statistics	Experimental Group	Traditional Group	t-value
Number of trainees	42	42	10.005*
Mean	27.833	21.670	
Standard Deviation	1.987	3.462	
Standard Error of Mean	0.616		

* Significant at 0.01 level.

The obtained 't'-value was 10.005 which is more than 0.05 level value 1.96 and 0.01 level value 2.58 with $df = 82$. From this result, it can be concluded that there was a statistically significant difference between the mean gain scores of Experimental group and Traditional group.

Table 4.4**Comparison of mean pre-test scores of boys & girls of Experimental Group**

Statistics	Boys	Girls	t-value
Number of trainees	08	34	0.515**
Mean	4.125	4.471	
Standard Deviation	1.458	1.762	
Standard Error of Mean	0.672		

** Not significant at both the levels.

The obtained 't'-value was 0.515 which is less than 0.05 level value 1.96 & 0.01 level value 2.58 with $df=40$. Thus, there is no significant difference between the mean pre-test scores of boys and girls of Experimental Group. Hence, it can be concluded that girls and boys were equal before treatment.

Table 4.5**Comparison of mean gain scores of boys & girls of Experimental Group**

Statistics	Boys	Girls	t-value
Number of trainees	08	34	0.854**
Mean	28.375	27.706	
Standard Deviation	1.995	1.993	
Standard Error of Mean	0.783		

** Not significant at both the levels.

The obtained 't'-value was 0.854 which is less than 0.05 level value 1.96 & 0.01 level value 2.58 with df=40. Thus, there is no significant difference between the mean gain scores of boys and girls of Experimental Group. It means self-learning material on 'Bio-diversity' was found equally effective for boys and girls of Experimental group.

Major Findings of the Study

The major findings of the study are as follows

- (1) The study has resulted in the development of a self-learning material on "Bio-diversity" for teaching Environmental Education to the B.Ed. trainees of Gujarati medium college.
- (2) The developed self-learning material on "Bio-diversity" was found significantly effective for the trainees of B.Ed. of Experimental group.
- (3) There was no significant difference found between the mean pre-test scores of Experimental group and Traditional group.
- (4) There was a statistically significant difference between the mean gain scores of Experimental group and Traditional group. The significant difference found was because of self-learning material. So we can say that learning through self-learning material is more effective than learning through traditional teaching method.
- (5) There was no significant difference between the mean pre-test scores of boys and girls of Experimental group. Hence, it can be concluded that girls and boys of Experimental group were equal before treatment.
- (6) There was no significant difference between the mean gain scores of boys and girls of Experimental group. Therefore, it was concluded that the developed self-learning

material was found equally effective in teaching both boys and girls of Experimental group.

Conclusion

The present research reveals that if the trainees are taught through Self-Learning Materials they can have better performance on their achievement test than traditional method. Another important finding of this research was that learning through Self-Learning Materials was found equally effective for learning to both the boys and girls. Hence, learning through Self-Learning Materials is a learner-centered approach with the help of which trainees can learn themselves independently at their own pace of learning. In conclusion, it can be said that Self-Learning Materials could prove to be effective in learning if it is used in classrooms.

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