Research Paper-Education

A Study of Effectiveness of Teaching through E-Learning on the Educational Achievement of the Students in Science and Technology Subject

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Abstract:

Present study had been undertaken to assess the effectiveness on the achievement of Science & Technology of the teaching method through e-learning and traditional class room teaching method. For, this, the researcher prepared e-learning programme and the effectiveness of the programme was assessed by the Experimental research method on the achievement of Science & Technology of the students. In the present study, the sample was selected by purposive sampling method, in which a rural and an urban school are included. For experimenting on these selected sample, equal groups only Post Test Design was implemented. For this, the test based on the subject of Science & Technology of Std. VIII and IX was administered to the students of Std. X to form the equal groups in both the areas. By arranging the scores of this test in the ascending order, the student getting the first rank in the first group of students and the student getting the second rank in the second group, the student getting the third rank in the second group and the student getting the fourth rank in the first group was kept. Thus the students were distributed in two groups in both the areas. Then those groups were classified randomly as a controlled group and an experimental group. In both the areas, e-learning programme on experimental group and traditional classroom teaching programme on controlled group were implemented. After the implementation, the post test was administered to them to assess the effectiveness of the achievement of Science & Technology. And at the end of one month in order to know the retention, the test was administered again. For assessing the hypothesis with the help of the scores obtained on the test ,t-test was used as suitable Statistical Technique.

Keywords: *e-learning, Educational Achievement*

1. Objectives of Research

1. To construct the e-learning programme on the selected two units of the content of Science and Technology of Std. X.
2. To assess the effectiveness of Traditional class-room teaching and Teaching through e-learning on the educational achievement of the students of Std. X.
3. To assess the effect of area on the relation of the educational achievement and the teaching method through e-learning.
4. To assess the effect of teaching through e-learning on retention.

2. Hypotheses of Research

Ho_1: There will not be the significant difference between the mean scores of Science and Technology of the students of the Experimental group and the Controlled group of the rural area.

Ho_2: There will not be the significant difference between the mean scores of Science and Technology of the students of the Experimental group and the controlled group of the urban area.

Ho_3: There will not be the significant difference between the mean scores of post test of Science and Technology and Retention test of the students of the Experimental group of Rural area.

Ho_4: There will not be the significant difference between the mean scores of post test of Science and Technology and Retention test of the students of the Experimental group of Urban area.

Ho_5: There will not be the significant difference between the mean scores of post test of Science and Technology and Retention Test of the controlled group of the rural area.

Ho_6: There will not be the significant difference between the mean scores of post test of Science and Technology and Retention Test of the controlled group of the Urban area.

Ho_7: There will not be the significant difference between the mean scores of post test and Retention of the students of science and Technology subject of experimental group and control group of rural area.

Ho_8: There will not be the significant difference between the mean scores of post test and Retention of the Students of science and Technology subject of experimental group and control group of urban area.

3. Population and Sample

In the present study the students studying during the year 2008-09 of Std. X in the Secondary Schools of Gujarati medium of Ahmedabad and Gandhinagar District are the population. Sample was selected by using the purposive sampling method in the present study, in which one school of rural and urban area is included. Number of students of both the groups of the schools of both the areas.

Experiment No.	Area	Controlled Gr. No. of students	Exp. Gr. No. of students	Total No. of students.
1	Rural	32	32	64
2	Urban	38	38	76
Total		70	70	140

4. Research method - Design

For experimentation on the selected sample, Equal group only Post Test Design had been implemented. For this, in both the areas, in order to make the equal groups, the test based on the subject of Science and Technology of Std. 8 and 9 was administered to the students of Std. 10. In both the areas, out of the sample e-learning programme was implemented on the Experimental group and the method of traditional class-room teaching was implemented on the controlled group. After the implementation post test was administered to assess the effectiveness of the subject Science and Technology. And at the end of one month in order to know the Retention of it the same test was administered again. t-test was used as the suitable statistical technique for Hypothesis Testing with the help of the scores obtained in the test.

5. Preparation of teaching through e-learning programme

The main objective of the present study was to prepare e-learning programme by using the e-learning material. It was prepared based on the two units of Science and Technology of Std. 10 namely “Reflection and Refraction of light” and Dispersion of light and Optical Instruments.

6. Construction of the tools

In the present research in both the experiments, a test was constructed to make the equal groups and post test was constructed of the subject Science & Technology of Std. X.

7. Data Collection and Analysis

In the present study at the end of both the experiments the post test was administered to the students. In order to assess the retention at the end of one month the same test (post test) was administered. On the basis of scoring design after checking the answer sheets the scores were gained.

In the present research, Mean, S.D. and standard error were calculated by area wise and GroupWise of the scores of the post test and the retention test. And t-test was used to compare the means of the obtained scores.

8. Hypothesis Testing

Hypothesis testing of the present study is mentioned in Table 2.

Table -2 Hypotheses Testing

No.	Hypothesis	t-value	Level of Significance	Acceptance or Non-Acceptance
1	Ho1:- There will not be the significant difference between the mean scores of Science and Technology of the students of the Experimental group and the Controlled group of the rural area.	3.84	0.01	Not Accepted
2	Ho2:- There will not be the significant difference between the mean scores of Science and Technology of the students of the Experimental group and the controlled group of the urban area.	2.78	0.01	Not Accepted
3	Ho3:- There will not be the significant difference between the mean scores of post test of Science and Technology and Retention test of the students of the Experimental group of Rural area.	1.79	0.01	Accepted
4	Ho4:- There will not be the significant difference between the mean scores of post test of Science and Technology and Retention test of the students of the Experimental group of Urban area.	1.66	0.01	Accepted
5	Ho5:- There will not be the significant difference between the mean scores of post test of Science and Technology and Retention Test of the controlled group of the rural area.	3.1	0.01	Not Accepted
6	Ho6:- There will not be the significant difference between the mean scores of post test of Science and Technology and Retention Test of the controlled group of the Urban area.	3.49	0.01	Not Accepted
7	Ho7:-There will not be the significant difference between the mean scores of post test and Retention of the students of science and Technology subject of experimental group and control group of Rural area.	1.56	0.01	Accepted
8	Ho8:- There will not be the significant difference between the mean scores of post test and Retention of the students of science and Technology subject of experimental group and control group of Urban area.	2.25	0.01	Accepted

9. Finding of Research

Following are the findings or conclusions of the study based on the interpretations obtained from the hypotheses testing constructed suited to the present study:-

1. With reference to two units of Science and Technology of Std. X of the School of Urban and Rural area namely ' Reflection and Refraction of Light and Dispersion of Light and optical instruments there was the significant effect of Teaching through e-learning on the educational achievement of the students of the Experimental groups.
2. With reference to two units of Science and Technology of Std. X of the School of Urban and Rural area namely ' Reflection and Refraction of Light and Dispersion of Light and optical instruments, the retention of the students of the experimental group remained effective.
3. With reference to two units of Science and Technology of Std. X of the School of Urban and Rural area namely ' Reflection and Refraction of Light and Dispersion of Light and optical instruments, the decrease had been observed in the retention of the students of the controlled group.
4. In context to the difference of means of the scores of the post test and the retention of the students of both the groups of both the areas, retention remains effective equally. This suggests that with reference to two units of Science and Technology of Std. X namely 'Reflection and Refraction of Light and Dispersion of while Light and optical instruments, equal effect of both types of teaching is remained on the retention of the students of the School of Urban and Rural area.

10. Conclusion

The researcher made effort to know the effect on the educational achievement by teaching through e-learning in the subject of Science & Technology. It has been proved here that the level of educational achievement can be taken at height in the subject of Science and Technology, through the e-learning teaching programme prepared by adequate treatment. Moreover the researcher had experienced that by the use of the technology schools can give qualitative education to the students and can improve the quality also. Simultaneously they can save the time also. Thus, in the present study, the researcher has attempted to prepare the e-learning programme with the aim of giving the new teaching-learning process and secondly with the aim of making the Educational achievement effective.

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